REPAIR MANUAL

MANUAL NUMBER X006627 | REVISION B | ENGLISH (US)

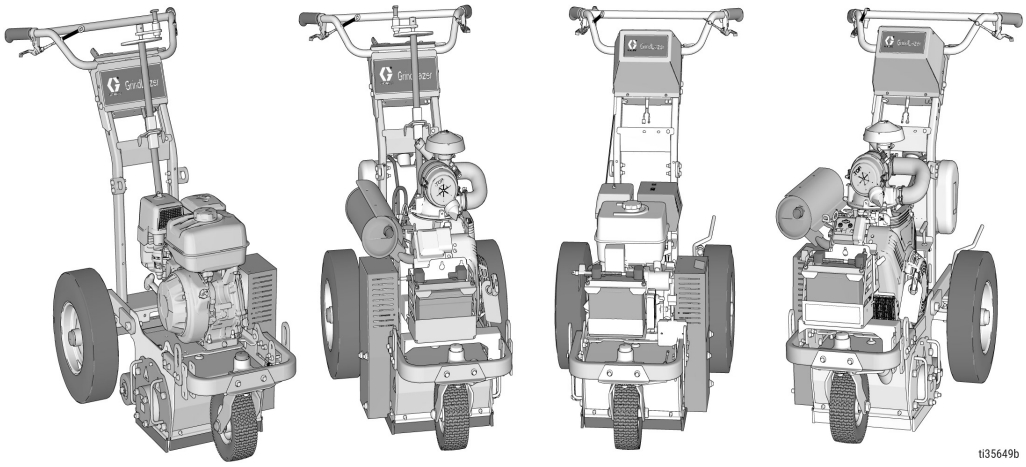
GrindLazer™

For removal of materials from flat horizontal concrete and asphalt surfaces. For professional use only.

IMPORTANT SAFETY INSTRUCTIONS

Read all warnings and instructions in this manual and in the Operation and Parts Manuals before using the equipment. Be familiar with the controls and the proper usage of the equipment. Save all instructions.

graco.com/contact



25M992/25M993 25M994 25N658 25N659

(Drums, cutters, and LineDriver™ sold separately)

MOVING MATERIALS THAT MATTER

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MODELS

The part numbers reflect distinct features and characteristics of the GrindLazer™.

GRINDLAZER™ MODELS

MODEL	DESCRIPTION	CUT
25M992	GrindLazer HP DC89 G (270 cc / 9 hp)	Forward
25M993	GrindLazer HP DC1013 G (390 cc / 13 hp)	Forward
25M994	GrindLazer HP DC1021 G (627 cc / 21 hp Electric Start)	Reverse Up-Cut (Must be used with LineDriver™)
25N658	GrindLazer HP DC1013 G DCS (390 cc / 13 hp Electric Start)	Forward
25N659	GrindLazer HP DC1021 G DCS (627 cc / 21 hp Electric Start)	Reverse Up-Cut (Must be used with LineDriver™)

APPROVALS FOR ALL MODELS

CE

RELATED MANUALS

Additional documents are available to support the operation, repair, and maintenance of the GrindLazer™. Find English manuals and any available translations at www.graco.com.

Table 2-1: Related Manuals for GrindLazer™ Manual X006627

ENGLISH MANUAL	DESCRIPTION
3A5919	GrindLazer™, Repair
3A5929	GrindLazer™, Parts
312540	LineDriver® / LineDriver HD / LineDriver HD Electric Start, Operation
3A6623	LineDriver™ ES, Operation

TRANSLATED MANUALS

Additional language documents are available to support all regions where the GrindLazer™ is sold. Find any available translations at www.graco.com.

Table 2-2: Translations for GrindLazer™ Manual

LANGUAGE	MANUAL NUMBER
English	X006627EN
French	X006627FR
Spanish	X006627ES
Bulgarian	X006627BG
Croatian	X006627HR
Czech	X006627CS
Danish	X006627DA
Dutch	X006627NL
Estonian	X006627ET
Finnish	X006627FI
German	X006627DE
Greek	X006627EL
Hungarian	X006627HU
Italian	X006627IT
Latvian	X006627LV
Lithuanian	X006627LT
Norwegian	X006627NO
Polish	X006627PL
Portuguese	X006627PT
Romanian	X006627RO
Slovak	X006627SK
Sloevian	X006627SL
Swedish	X006627SV
Turkish	X006627TR
Chinese	X006627ZH

LANGUAGE	MANUAL NUMBER
Japanese	X006627JA
Korean	X006627KO

SAFETY SYMBOLS

The following safety symbols appear throughout this manual and on warning labels. Read the table below to understand what each symbol means.

SYMBOL	MEANING
	Burn Hazard
	Cut Foot Hazard
	Entanglement Hazard
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Flying Debris Hazard

SYMBOL	MEANING
	Toxic Fluid or Fumes Hazard
	Ground Equipment
	Read Manual
	Wear Personal Protective Equipment
	Wear Protective Footwear



Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

GENERAL WARNINGS

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

⚠ WARNING	
	**DUST AND DEBRIS HAZARD** Grinding concrete and other surfaces with this equipment can create dust that contains hazardous substances. Grinding can also create flying debris. To reduce the risk of serious injury: • Control the dust to meet all applicable workplace regulations. • Wear protective eye wear and a properly fit-tested and government approved respirator suitable for the dust conditions. • Use equipment only in a well-ventilated area. • Grinding equipment must be used only by trained personnel who understand the applicable workplace regulations.
	**ENTANGLEMENT AND ROTATING PARTS HAZARD** Rotating parts can cut or amputate fingers and other body parts. • Keep clear of rotating parts. • Do not operate equipment with protective guards or covers removed. • Do not wear loose clothing, jewelry or long hair while operating equipment. • Before checking, moving, or servicing equipment, disable power supply.
	**BURN HAZARD** Cutters and engine can become very hot during operation. To avoid severe burns, do not touch hot equipment. Wait until equipment has cooled completely.
	**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 leave the work area while equipment is energized. Turn off all equipment 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. • 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. • Maintain a safe operating distance from other people in the work area. • Avoid any pipes, columns, openings, or any other objects protruding from work surface.

⚠ WARNING



PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of dust or chemicals, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eye wear.
- Protective shoes.
- Gloves.
- Hearing protection.
- Properly fit-tested and government approved respirator suitable for the dust conditions.



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint 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 fire extinguisher in work area.



CARBON MONOXIDE HAZARD

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

- Do not operate in an enclosed area.



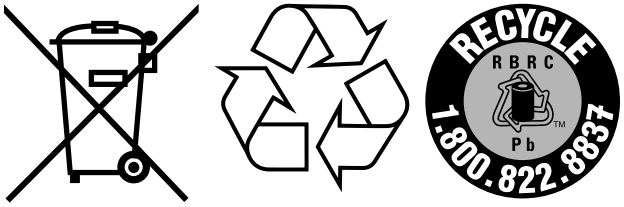
BATTERY HAZARD

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.

RECHARGEABLE BATTERY DISPOSAL

Do not place batteries in the trash. Recycle batteries according to local regulations. In the USA and Canada, call 1-800-822-8837 to find recycling locations or go to www.call2recycle.org.



TECHNICAL SPECIFICATIONS

The table provides important information related to the GrindLazer™, including product attributes, measurements, and performance characteristics that support the use of the equipment.

GRINDLAZER HP DC89 G (MODEL 25M992)

Table 6-1: Technical Specifications for GrindLazer HP DC89 G (Model 25M992)

	US	METRIC
Height		
Unpackaged	46 in.	116.8 cm
Packaged	50.5 in.	128.3 cm
Width		
Unpackaged	28 in.	71.1 cm
Packaged	37 in.	94.0 cm
Length		
Unpackaged	62 in.	157.5 cm
Packaged	73 in.	185.4 cm
Weight		
Unpackaged	300 in.	136 cm
Packaged	400 in.	181 cm
Noise (dBa)		
Sound Power per ISO 3744:	107.3	
Sound Pressure measured at 3.1 feet (1m):	91.6	
Vibration (m/sec^2) per ISO 3744		
Without LineDriver:	7.9	
With LineDriver:	8.3	
Power Rating (HorsePower) per SAE J1349		
8.0 @ 3600 rpm		
Maximum storage time	5 years	
Maximum lifetime	10 years	
Power efficiency factor	200 ground meters per liter fuel	
All trademarks or registered trademarks are the property of their respective owners		

GRINDLAZER HP DC1013 (MODEL 25M993)

Table 6-2: Technical Specifications for GrindLazer HP DC1013 (Model 25M993)

	US	METRIC
Height		
Unpackaged	46 in.	116.8 cm
Packaged	50.5 in.	128.3 cm
Width		
Unpackaged	28 in.	71.1 cm
Packaged	37 in.	94.0 cm
Length		
Unpackaged	62 in.	157.5 cm
Packaged	73 in.	185.4 cm
Weight		
Unpackaged	310 in.	141 cm
Packaged	410 in.	186 cm
Noise (dBa)		
Sound Power per ISO 3744:	109.3	
Sound Pressure measured at 3.1 feet (1m):	93.6	
Vibration (m/sec^2) per ISO 3744		
Without LineDriver:	7.5	
With LineDriver:	5.9	
Power Rating (HorsePower) per SAE J1349		
11.0 @ 3600 rpm		
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GRINDLAZER HP DC1021 G (MODEL 25M994)

Table 6-3: Technical Specifications For GrindLazer HP DC1021 G (Model 25M994)

	US	METRIC
Height		
Unpackaged	46 in.	116.8 cm
Packaged	50.5 in.	128.3 cm
Width		
Unpackaged	28 in.	71.1 cm
Packaged	37 in.	94.0 cm
Length		
Unpackaged	62 in.	157.5 cm
Packaged	73 in.	185.4 cm
Weight		
Unpackaged	365 in.	165 cm
Packaged	465 in.	211 cm
Noise (dBa)		
Sound Power per ISO 3744:	108.6	
Sound Pressure measured at 3.1 feet (1m):	92.1	
Vibration (m/sec^2) per ISO 3744		
With LineDriver:	4.9	
Power Rating (HorsePower) per SAE J1349		
21.0 @ 3600 rpm		
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GRINDLAZER HP DC1013 G DCS (MODEL 25N658)

Table 6-4: GrindLazer HP DC1013 G DCS (Model 25N658)

	US	METRIC
Height		
Unpackaged	46 in.	116.8 cm
Packaged	50.5 in.	128.3 cm
Width		
Unpackaged	28 in.	71.1 cm
Packaged	37 in.	94.0 cm
Length		
Unpackaged	62 in.	157.5 cm
Packaged	73 in.	185.4 cm
Weight		
Unpackaged	355 in.	161 cm
Packaged	455 in.	206 cm
Noise (dBa)		
Sound Power per ISO 3744:	109.3	
Sound Pressure measured at 3.1 feet (1m):	93.6	
Vibration (m/sec^2) per ISO 3744		
Without LineDriver:	7.5	
With LineDriver:	5.9	
Power Rating (HorsePower) per SAE J1349		
11.0 @ 3600 rpm		
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GRINDLAZER HP DC1021 G DCS (MODEL 25N659)

Table 6-5: Technical Specifications For GrindLazer HP DC1021 G DCS (Model 25N659)

	US	METRIC
Height		
Unpackaged	46 in.	116.8 cm
Packaged	50.5 in.	128.3 cm
Width		
Unpackaged	28 in.	71.1 cm
Packaged	37 in.	94.0 cm
Length		
Unpackaged	62 in.	157.5 cm
Packaged	73 in.	185.4 cm
Weight		
Unpackaged	385 in.	175 cm
Packaged	485 in.	220 cm
Noise (dBa)		
Sound Power per ISO 3744:	108.6	
Sound Pressure measured at 3.1 feet (1m):	92.1	
Vibration (m/sec^2) per ISO 3744		
With LineDriver:	4.9	
Power Rating (HorsePower) per SAE J1349		
21.0 @ 3600 rpm		
All trademarks or registered trademarks are the property of their respective owners		

The diagram highlights the controls and features on the GrindLazer™ that are used during typical operation.

MODELS 25M992, 25M993, 25M994

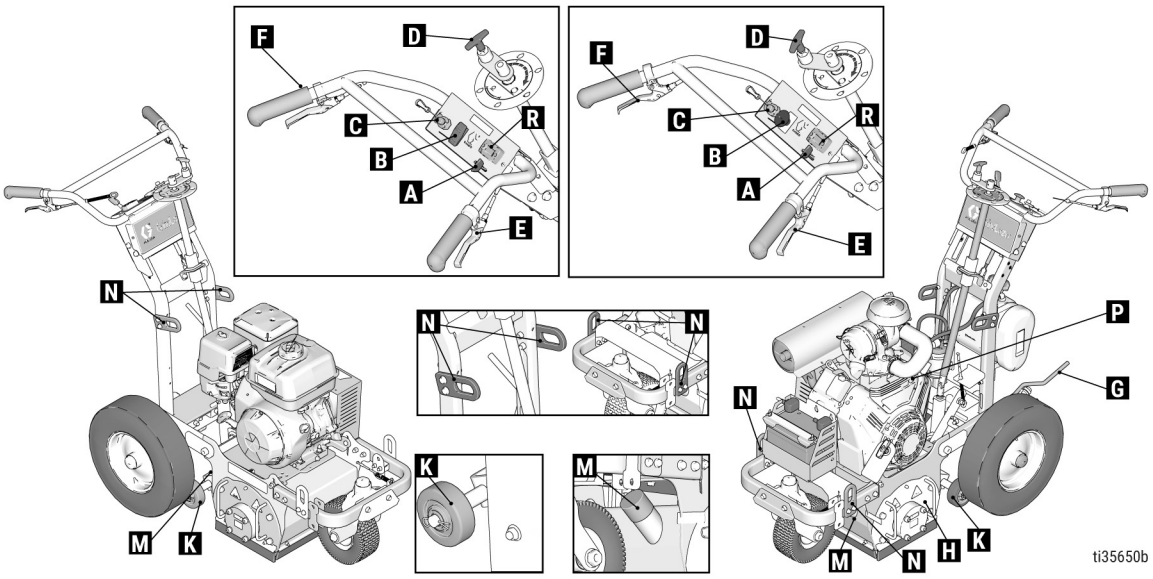


Figure 7-1: Components for GrindLazer™

	COMPONENT	DESCRIPTION
A	Engine Throttle Lever	Adjusts engine speed.
B	Power Switch	Supplies power to Engine
C	Engine Kill Button	Clamps onto the operator and shuts engine off if cord is disconnected during operation.
D	Drum Adjustment Dial	Sets depth of drum cut.
E	Drum Engage Lever	Handle bars can be pushed down to raise the cutting drum off of surface and locked into UP position. Once drum is locked in UP position, GrindLazer can be moved around without drum touching surface. To lower the drum to the surface, push down on handlebars, engage the Drum Engage Lever and then slowly pull the handlebars up.
F	Front Wheel Lock Lever	Front wheel is usually locked to guide GrindLazer in a straight line. When lever is engaged, front wheel becomes unlocked and is allowed to turn freely.
G	Rear Wheel Parking Brake	Prevents rear wheel from moving.
H	Drum Access Panel	Removable plate that allows access to replace cutting drum.
K	Depth Control Wheels	Levels cutting drum.
M	Vacuum Port	Port to attach vacuum to reduce dust and debris during operation.
N	Lift Points	Reinforced points used for lifting GrindLazer during transportaton or repair.
P	Ignition Switch	Electric Start Engine (DC1021 G Model Only)
R	Tachometer/Hour Meter	Displays the RPMs of the engine while running and displays total hours of engine run time.

MODELS 25N658, 25N659 (DCS MODELS)

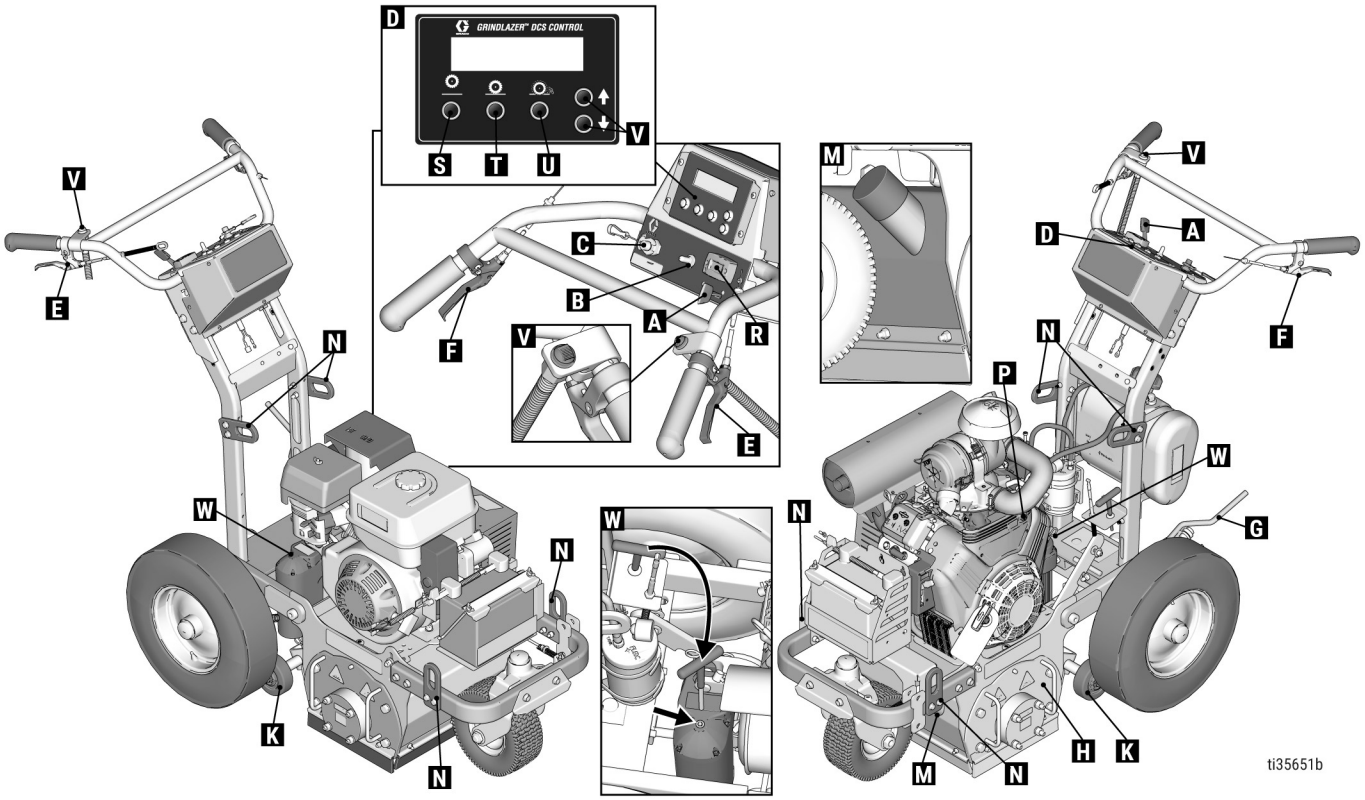


Figure 7-2: Components for GrindLazer™

	COMPONENT	DESCRIPTION
A	Engine Throttle Lever	Adjusts engine speed.
B	Power Switch	Supplies power to DCS Control and Engine.
C	Engine Kill Button	Clamps onto the operator and shuts engine off if cord is disconnected during operation.
D	DCS Control	Controls and displays depth of drum cut.
E	Drum Engage Lever	Handle bars can be pushed down to raise the cutting drum off of surface and locked into UP position. Once drum is locked in UP position, GrindLazer can be moved around without drum touching surface. To lower the drum to the surface, push down on handlebars, engage the Drum Engage Lever and then slowly pull the handlebars up.
F	Front Wheel Lock Lever	Front wheel is usually locked to guide GrindLazer in a straight line. When lever is engaged, front wheel becomes unlocked and is allowed to turn freely.
G	Rear Wheel Parking Brake	Prevents rear wheel from moving.
H	Drum Access Panel	Removable plate that allows access to replace cutting drum.
K	Depth Control Wheels	Levels cutting drum.
M	Vacuum Port	Port to attach vacuum to reduce dust and debris during operation.
N	Lift Points	Reinforced points used for lifting GrindLazer during transportaton or repair.
P	Ignition Switch	Electric Start Engine.
R	Tachometer/Hour Meter	Displays the RPMs of the engine while running and displays total hours of engine run time.
S	Home Button	Raises drum off the surface to highest position.
T	Zero Button	Brings the drum to the surface (reprogrammable).
U	Cut Depth Button	Lowers drum to the desired cut depth target (reprogrammable).
V	Up/Down Buttons	Raises or Lowers the drum.
W	Manual Height Adjustment	Remove screw plug to adjust drum height using 6mm hex key.

DRUM REPLACEMENT

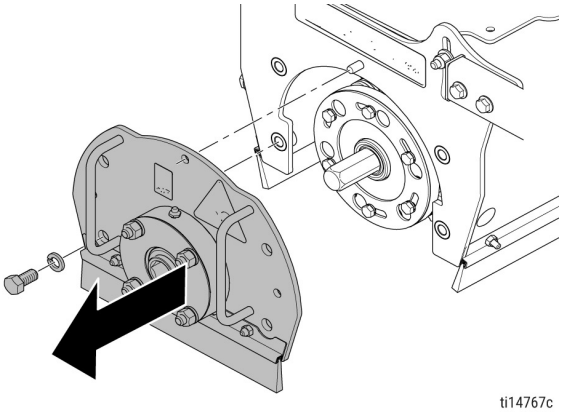
⚠ WARNING



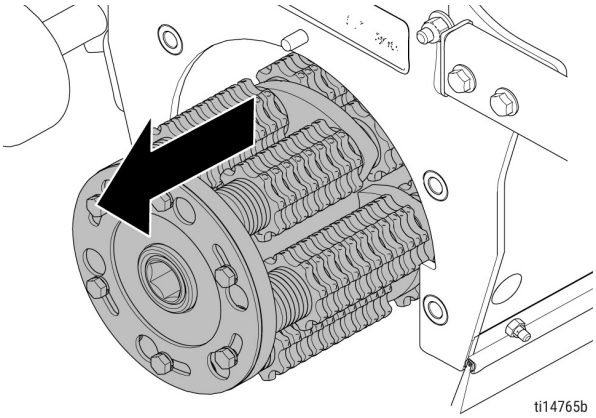
Avoid touching or handling drum after use until it has completely cooled. To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

REMOVAL

1. Remove four bolts and Drum Access Panel (H).



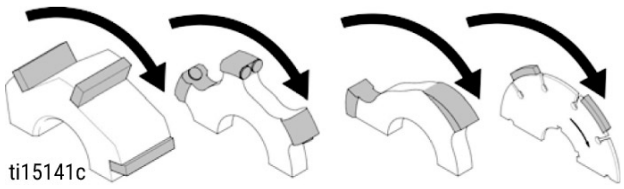
2. Slide drum off of hex shaft.



INSTALLATION

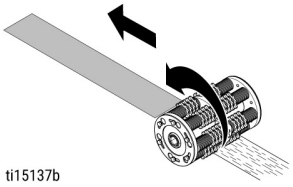
NOTE:

Carbide flail cutter drums do not require specific orientation or direction. Carbide millers and diamond blades are directional. They should be stacked so that the arrows on the millers, PCDs, and blades face the same direction as the rotation of the drum.



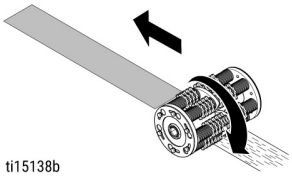
Carbide Miller **PCD** **Diamond Blade**

Models **25M992**, **25M993** and **25N658** are designed for "forward cut" grinding (the drum rotates in the same direction that it travels). Models **25M994** and **25N659** are designed for "reverse (up-cut)" grinding (the drum rotates in the opposite direction that it travels).



Forward Cut

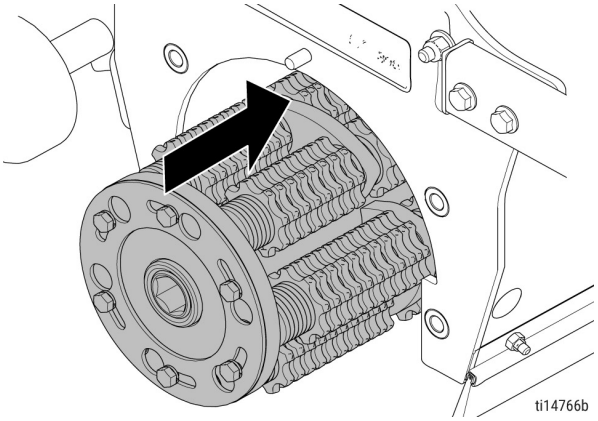
(25M992, 25M993 and 25N658)



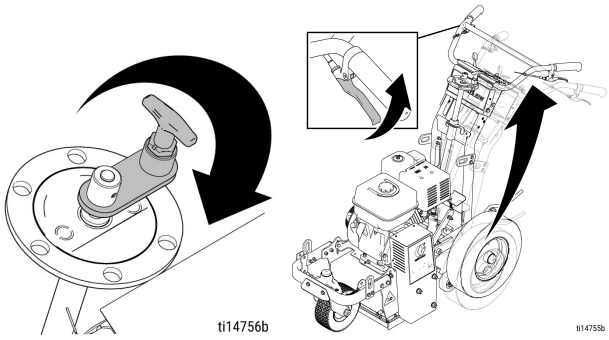
Reverse Up-Cut

(25M994 and 25N659)

1. Slide replacement drum onto hex shaft.

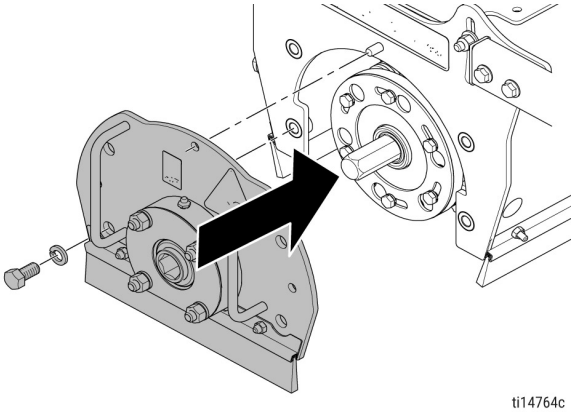


2. **Non-DCS Models:** Lower Drum Adjustment Dial (D) and pull Drum Engage Lever (E) so drum rests on ground and the door pin lines up with the hole.



DCS Models: Pull the Drum Engage Lever to lower the drum. Turn the Power Switch ON. Use the Up and Down Buttons to raise/lower the drum housing until the drum rests on the ground and the door pin lines up with the hole.

3. Replace Drum Access Panel (H) and tighten four bolts to 27-30 ft-lb (37-41 N•m).



CUTTER REPLACEMENT

⚠ WARNING



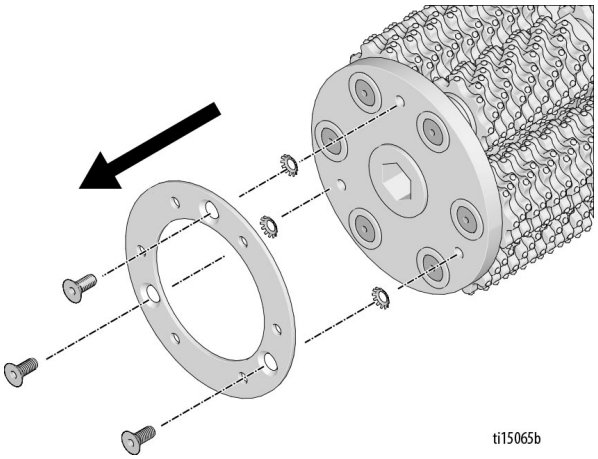
BURN HAZARD

Avoid touching or handling drum after use until it has completely cooled.

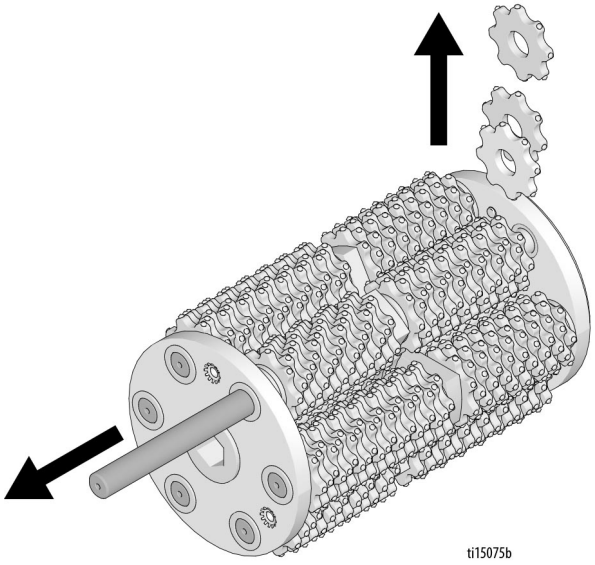
Different drum configurations can be used for different applications. Visit **www.graco.com/drumassembly** for instructions on how to assemble various drum configurations.

REMOVAL (CARBIDE FLAIL/CARBIDE MILLER)

1. Remove drum (see **Drum Replacement**).
2. Remove three bolts on each side of drum. Remove end plates.

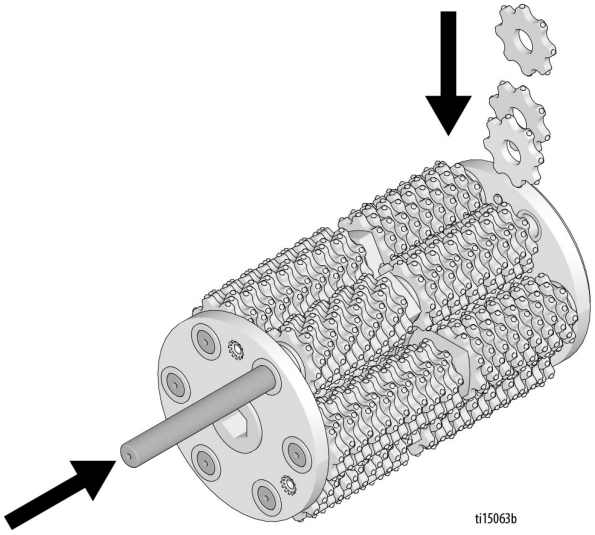


3. Push rod out and remove cutters.



INSTALLATION (CARBIDE FLAIL/CARBIDE MILLER)

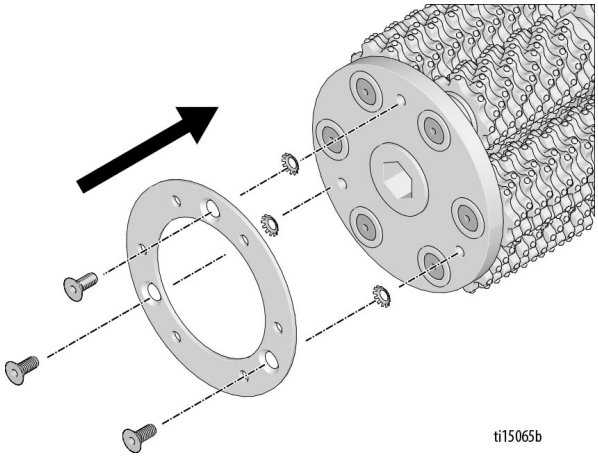
1. Replace cutters and washers (visit **www.graco.com/drumassembly** for cutter stacking recommendations).



NOTE:

Cutters must be centered on drum for best performance.

2. Reinstall end plates on each side of drum to cover rods.



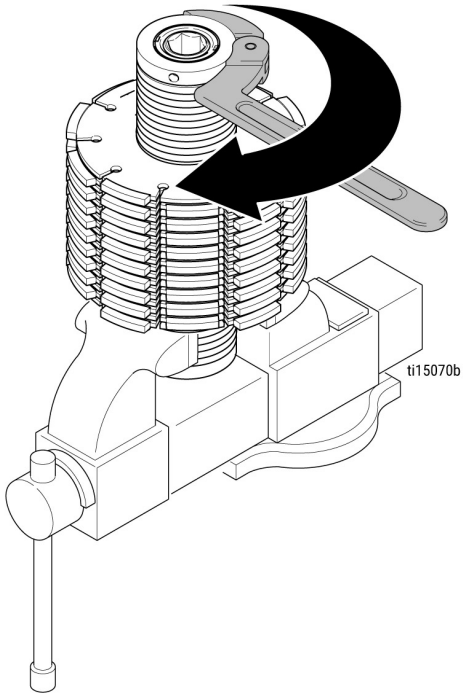
3. Tighten three bolts on each side of drum to 170-180 in-lb (19.2-20.3 N•m).
4. Install drum (see **Drum Replacement**).

REMOVAL (DIAMOND BLADES)

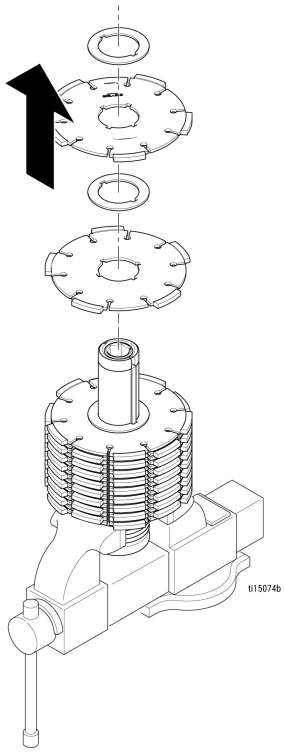
1. Remove drum (see **Drum Replacement**).
2. Place drum in vise.
3. Use spanner wrench to loosen spanner nut (turn clockwise) and remove.

NOTE:

This nut has a left-hand thread.

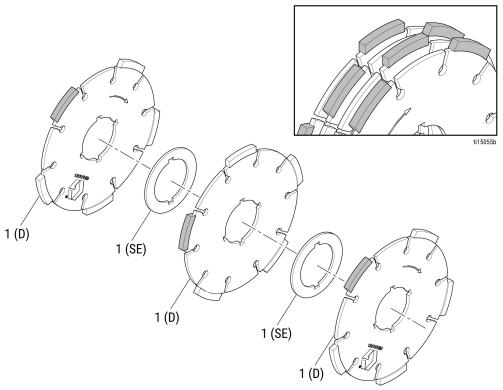


4. Remove all spacers and diamond blades.



INSTALLATION (DIAMOND BLADES)

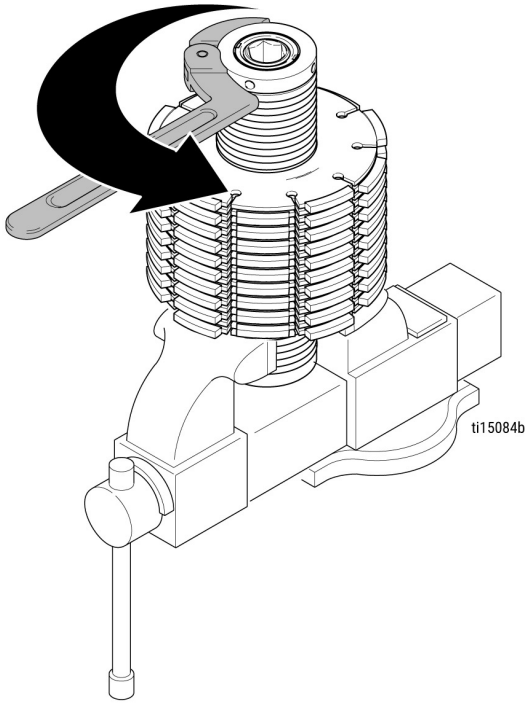
1. Replace all spacers and diamond blades in the sequence and orientation shown below (blades should be rotated in alternating segments when stacking).



NOTE:

Blades must be centered on drum for best performance.

2. Clean thread of dust and debris. Apply blue grade/ medium strength threadlocker. Use spanner wrench to tighten spanner nut flush with end of the drive shaft (turn counter-clockwise).

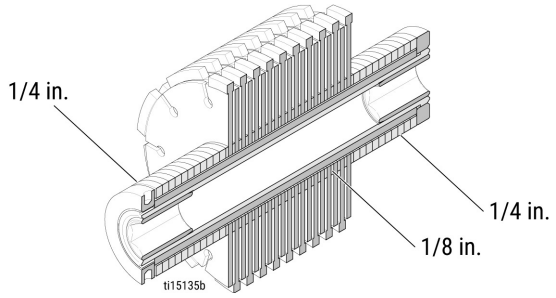


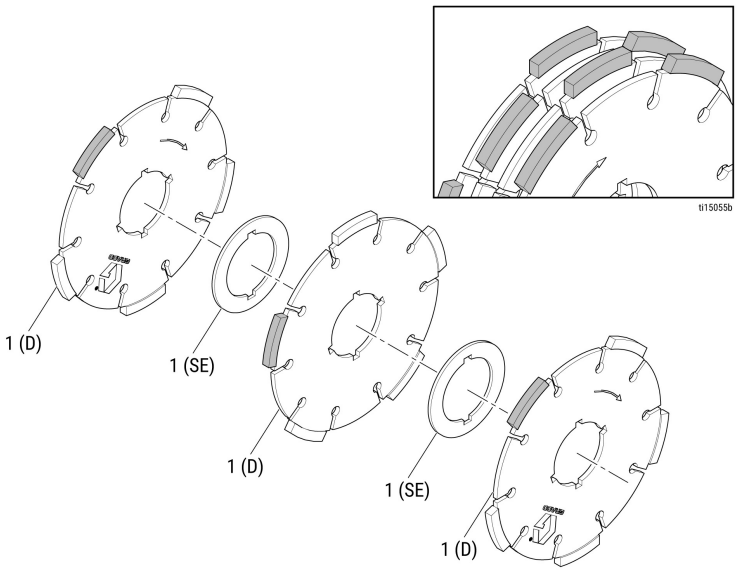
3. Remove drum from vise and install drum (see **Drum Replacement**).

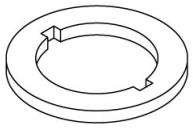
DIAMOND BLADES

GROOVE WIDTH	NUMBER OF BLADES	NUMBER OF STEEL 1/8 IN. SPACERS	NUMBER OF ALUMINUM 1/4 IN. SPACERS
1 in. (2.5 cm)	4	5	36
2 in. (5 cm)	8	9	32
3 in. (7.5 cm)	12	13	28
4 in. (10 cm)	16	17	23
5 in. (12.5 cm)	19	21	21
6 in. (15 cm)	23	24	15
7 in. (17.5 cm)	27	28	11
8 in. (20 cm)	31	32	7
9 in. (23 cm)	35	36	3
10 in. (25 cm)	38	39	2

For best performance, use 1/4 in. spacers on each end of shaft to center diamond blades on drum.

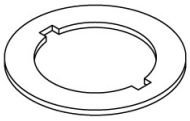






(SQ) 1/4 in.

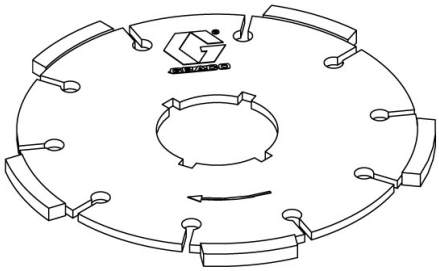
Spacer



(SE) 1/8 in.

Spacer

ti15054b



(D)

Diamond Blade

NOTE:

Be sure to rotate the blade 180 degrees every time an additional blade is added to a stack.

BELT REPLACEMENT

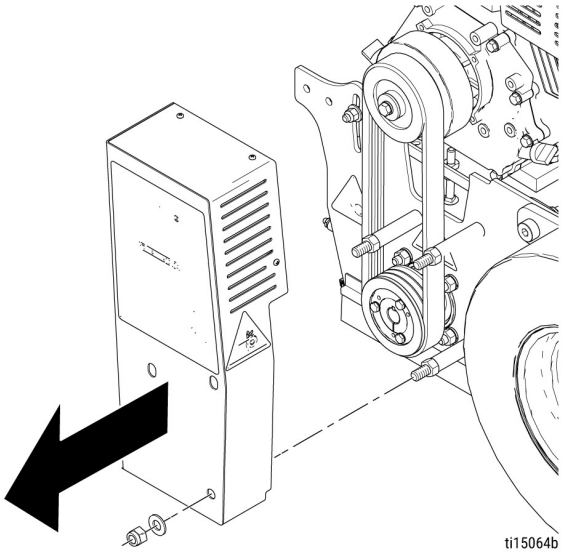
⚠ WARNING



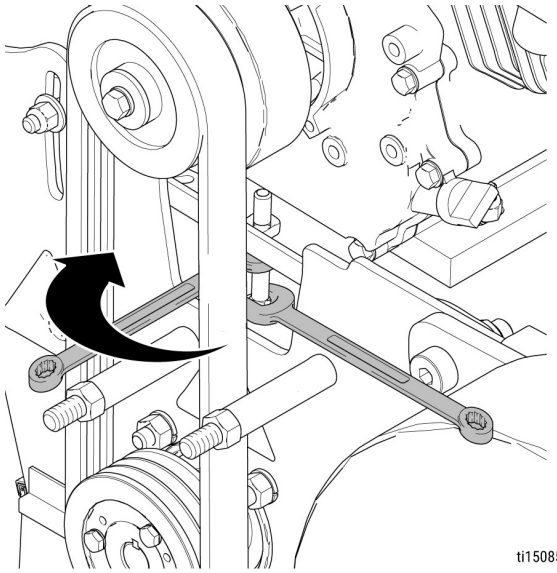
To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

REMOVAL

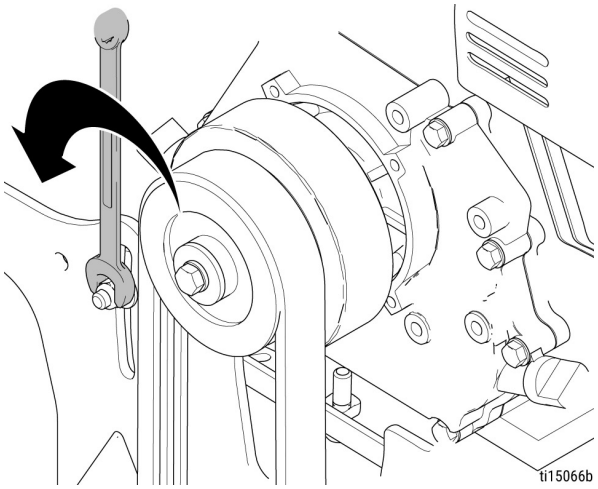
1. Remove three nuts and washers. Remove belt shroud.



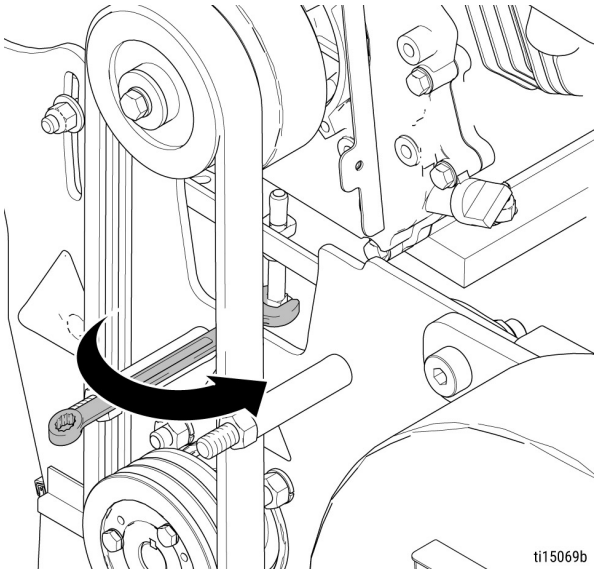
2. Loosen jam nut through two sides of belt.



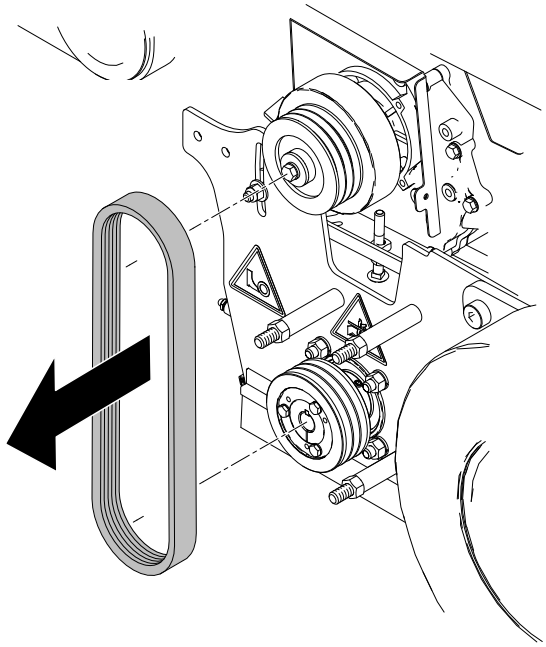
3. Use two wrenches to loosen motor mount bolts on each side of scarifier base.



4. Tighten bottom bolt to lower pulley plate.

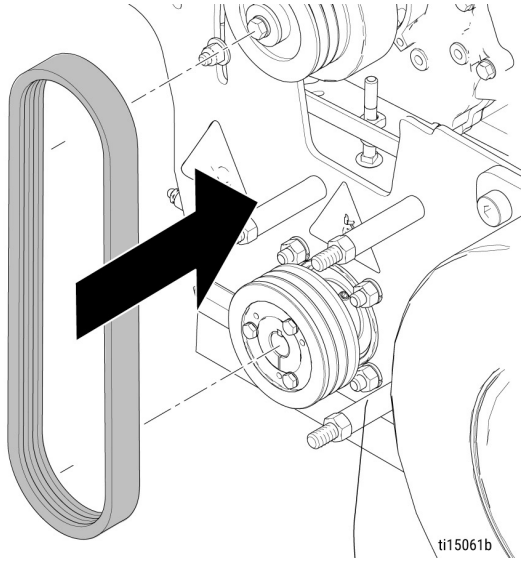


5. Remove used belt.

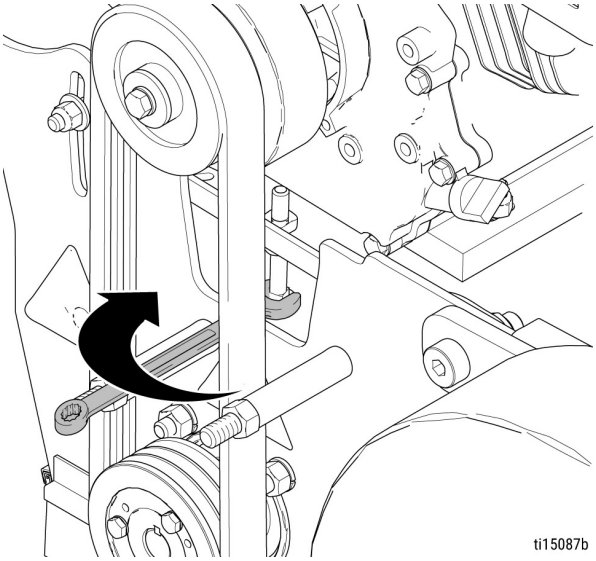


INSTALLATION

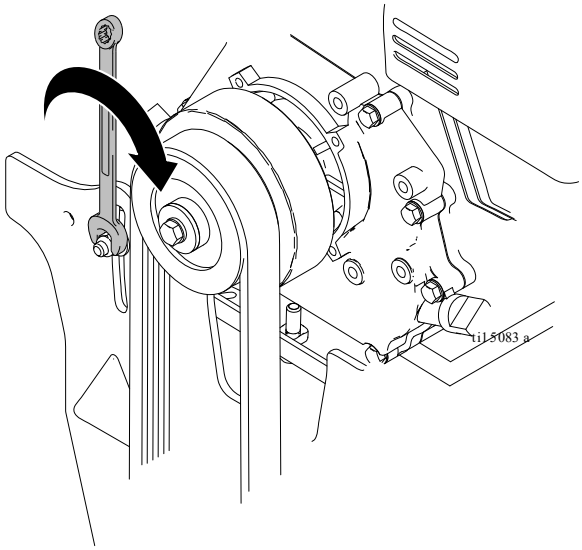
1. Install new belt.



2. Use two wrenches to tighten motor mount adjustment bolts on each side of scarifier base.



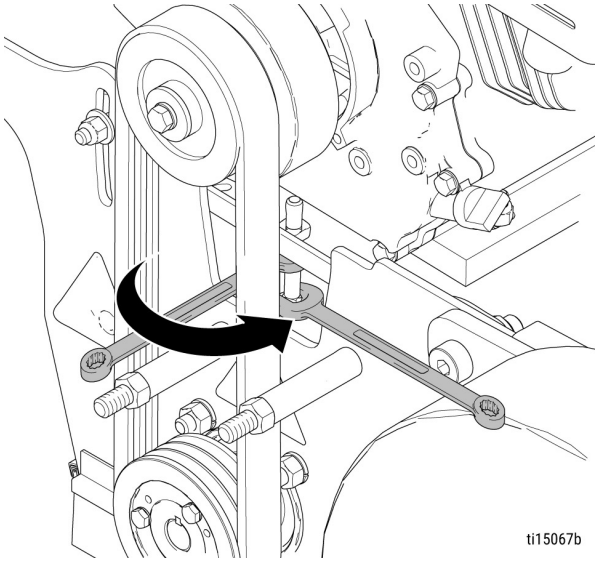
3. Tighten belt adjustment bolt according to recommended tension below.



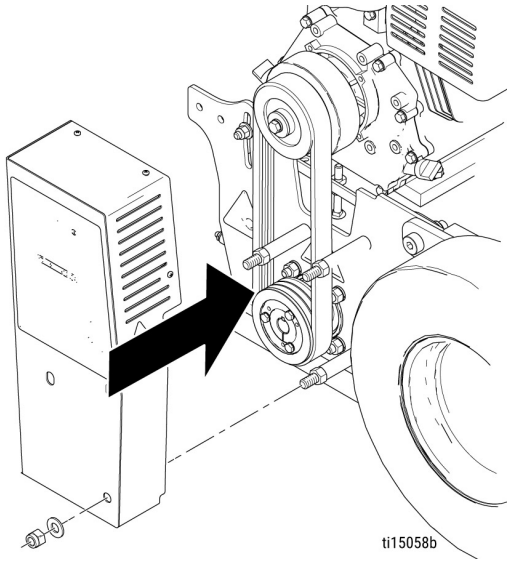
Belt Tension Recommendations:

3VX355 BELT		DC89	DC1013	DC1021
New Belt	Tension (Lbf)	145 +/- 5	193 +/- 7	194 +/- 7
	Frequency (Hz)	91 +/- 2	105 +/- 2	105 +/- 2
Used Belt	Tension (Lbf)	125 +/- 5	167 +/- 7	167 +/- 7
	Frequency (Hz)	85 +/- 2	98 +/- 2	98 +/- 2

4. Tighten jam nut through two sides of belt.



5. Replace belt shroud and tighten three nuts and four screws.



CLUTCH REPLACEMENT

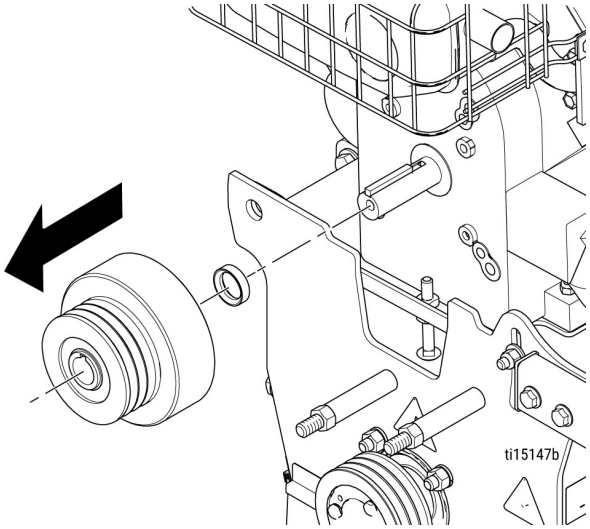
⚠ WARNING



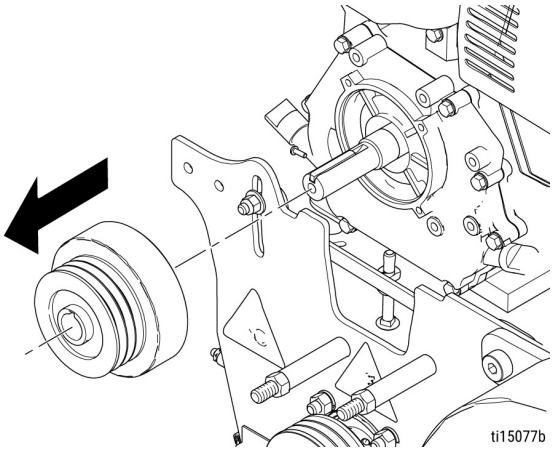
To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

REMOVAL

1. Remove belt guard and belt (see **Belt Replacement**).
2. Use impact wrench to remove clutch bolt.

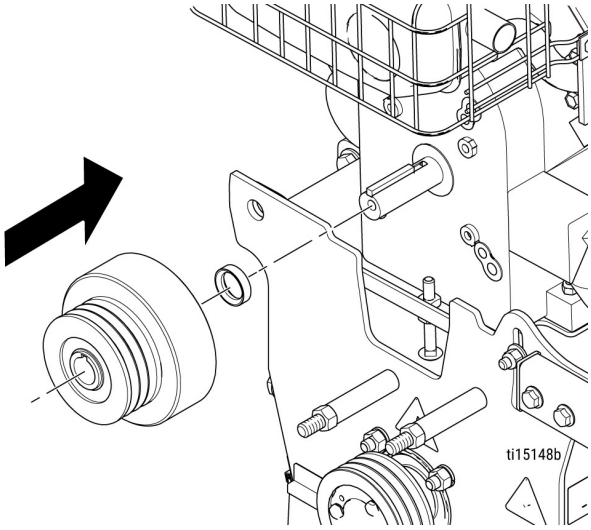


3. Remove used clutch.

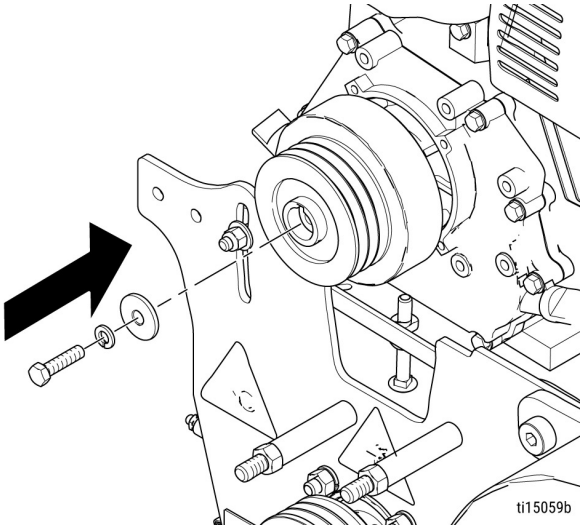


INSTALLATION

1. Install clutch.



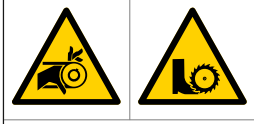
2. Use impact wrench to tighten clutch bolt.



3. Install belt and belt guard (see **Belt Replacement**).

PULLEY REPLACEMENT

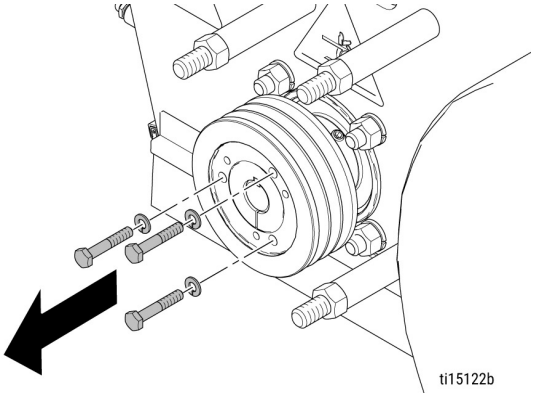
⚠ WARNING



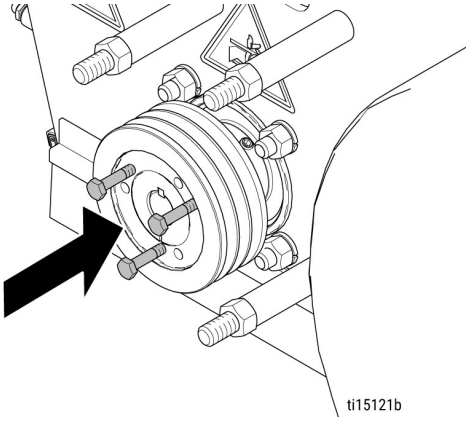
To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

REMOVAL

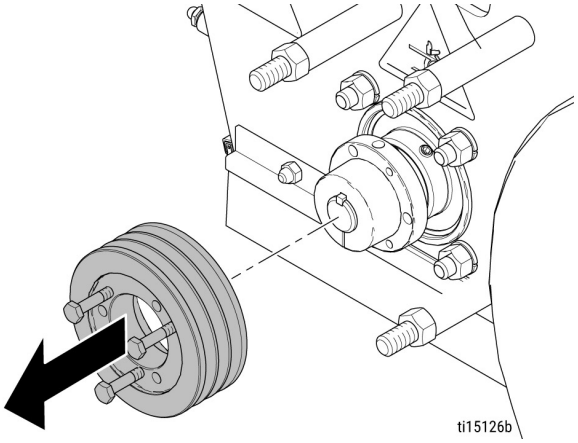
1. Remove drum (see **Drum Replacement**).
2. Remove belt guard and belt (see **Belt Replacement**).
3. Remove the three belt pulley bolts and washers.



4. Insert the three bolts into the pulley removal holes. Evenly tighten the screws to slowly remove pulley.

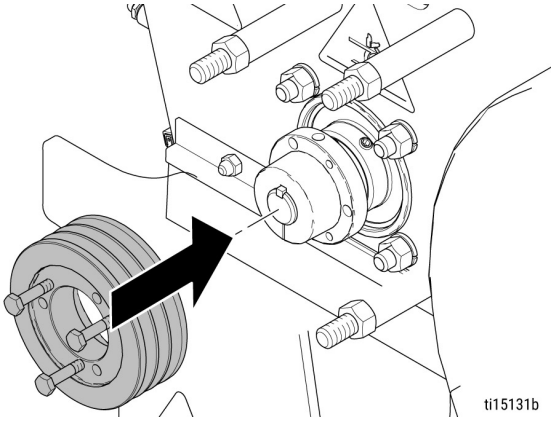


5. Remove pulley.

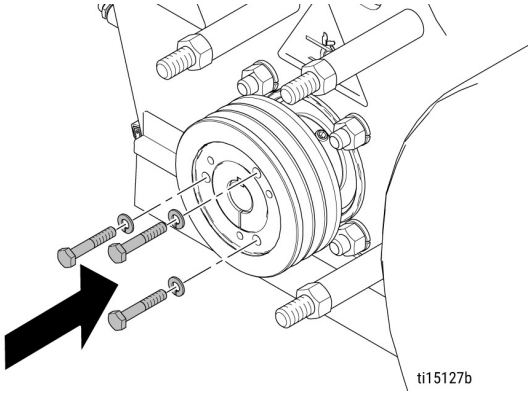


INSTALLATION

1. Install pulley onto hex shaft.



2. Insert three pulley bolts and washers.



3. Replace belt guard and belt (see **Belt Replacement**).
4. Replace drum (see **Drum Replacement**).

BRUSH REPLACEMENT

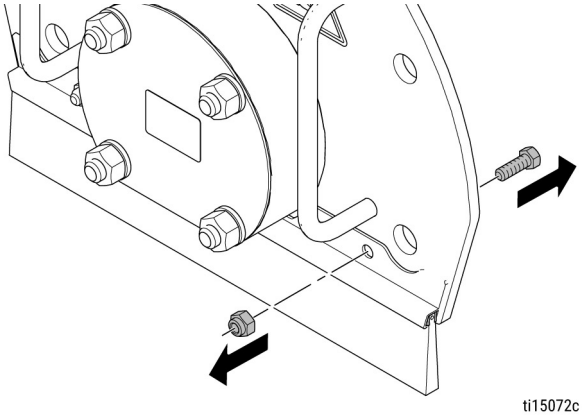
⚠ WARNING



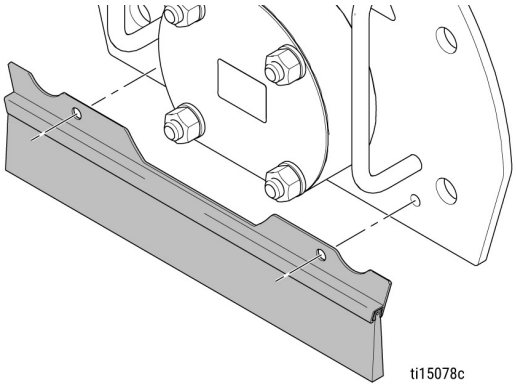
To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

REMOVAL

1. Remove two mounting bolts.

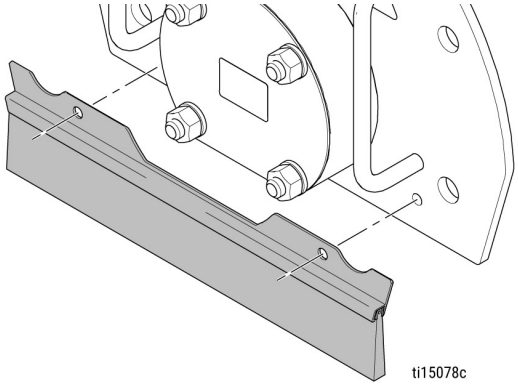


2. Remove used brush.

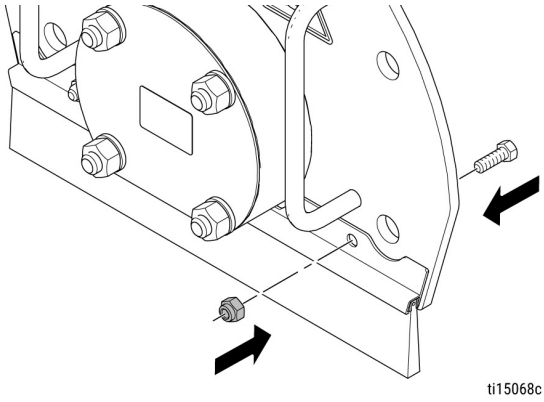


INSTALLATION

1. Install new brush.



2. Tighten two mounting bolts.



DRIVE BEARING ASSEMBLY REPLACEMENT

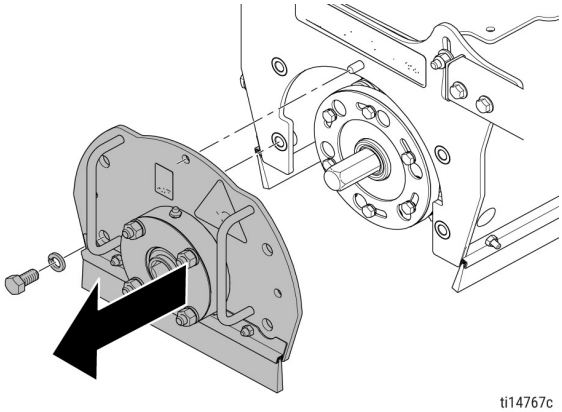
⚠ WARNING



To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

DOOR BEARING ASSEMBLY REMOVAL

1. Remove four nuts holding bearing assembly onto door and remove door.

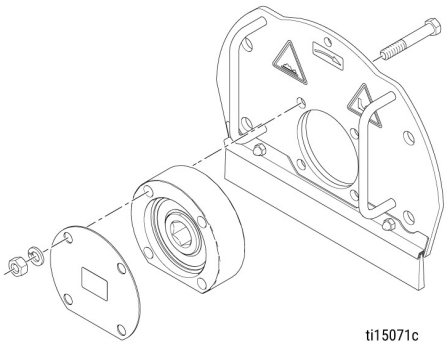


DOOR BEARING ASSEMBLY INSTALLATION

1. Insert new door bearing assembly through hole in door.

   NOTE:

   Make sure shaft seal is on the inside of the cage.

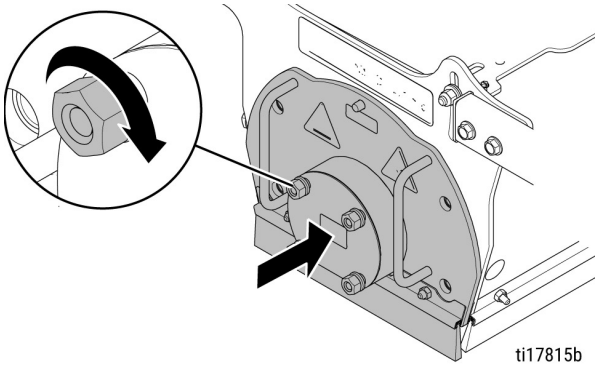


2. Install dust cover onto bearing. Hand-tighten nuts and lock washers to the door.

   NOTE:

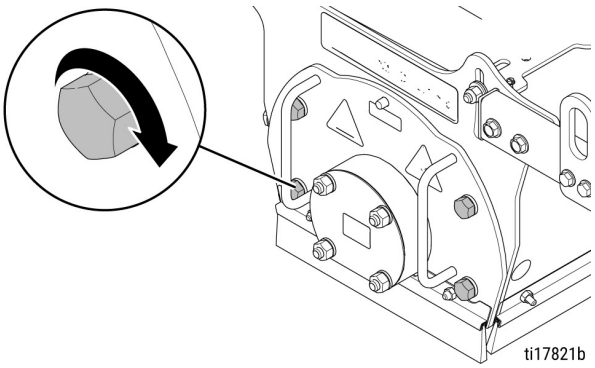
   Do NOT fully tighten bolts at this time.

3. Assemble door onto unit and slide door around until the bearing assembly settles into position for proper alignment.



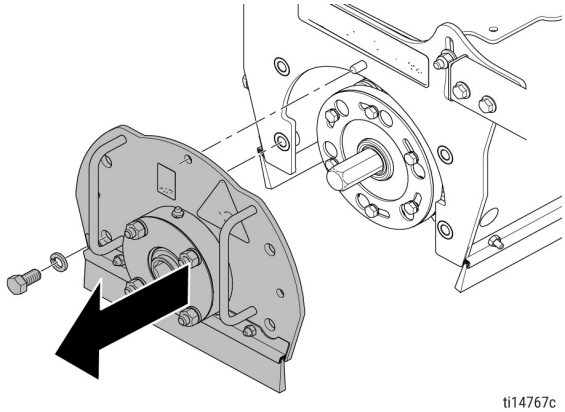
4. Tighten four nuts on bearing assembly to secure it into place.

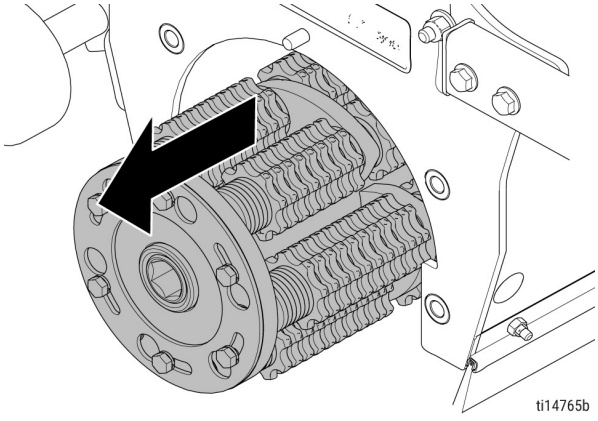
5. Tighten four bolts to hold door in place.



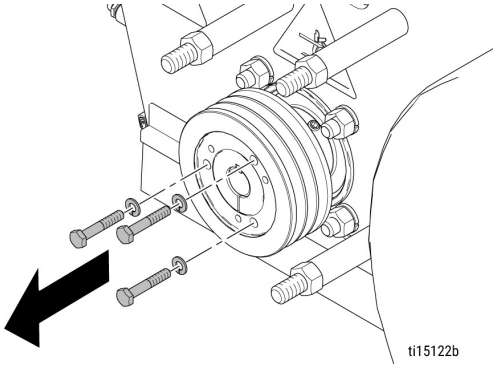
DRIVE BEARING ASSEMBLY REMOVAL

1. Remove door from unit and remove any cutting drum on machine.

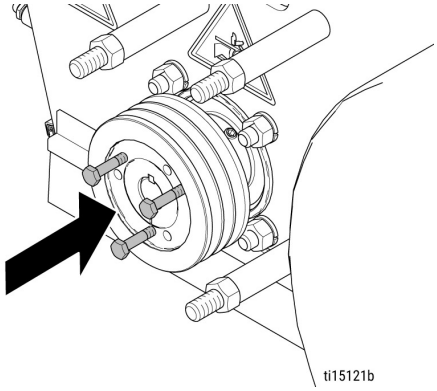




2. Remove belt guard and belt. (See **Belt Replacement**).
3. Remove sheave.
   a. Remove the three bolts holding sheave onto bushing.



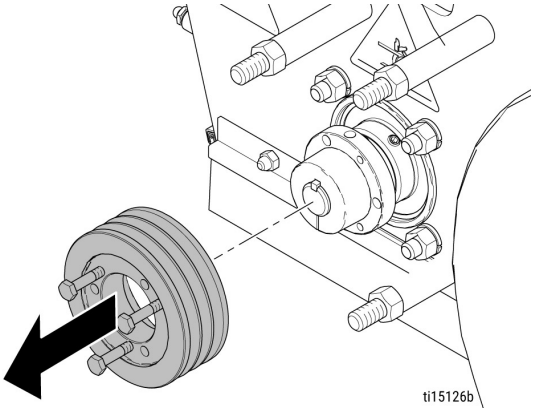
   b. Insert the three bolts into adjacent removal holes and evenly tighten to remove sheave from bushing.



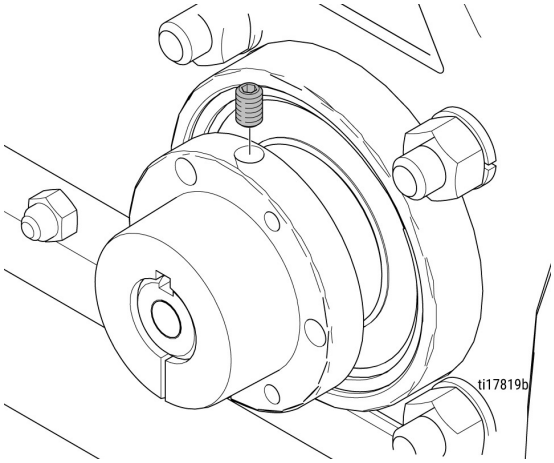
NOTICE

Do NOT over-torque an individual bolt or it will break.

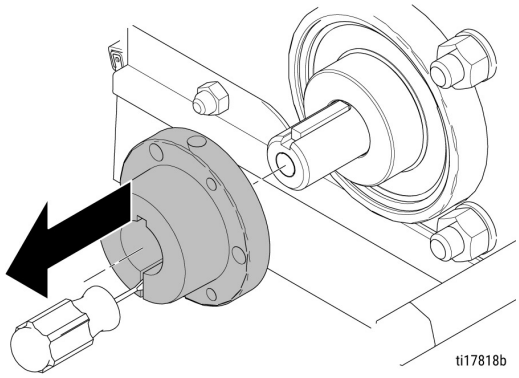
   c. Remove sheave.



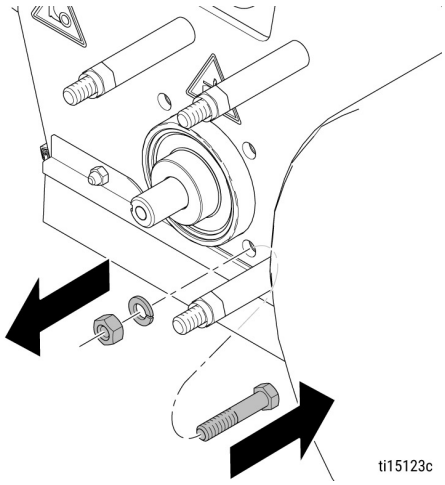
   d. Remove set screw from bushing.



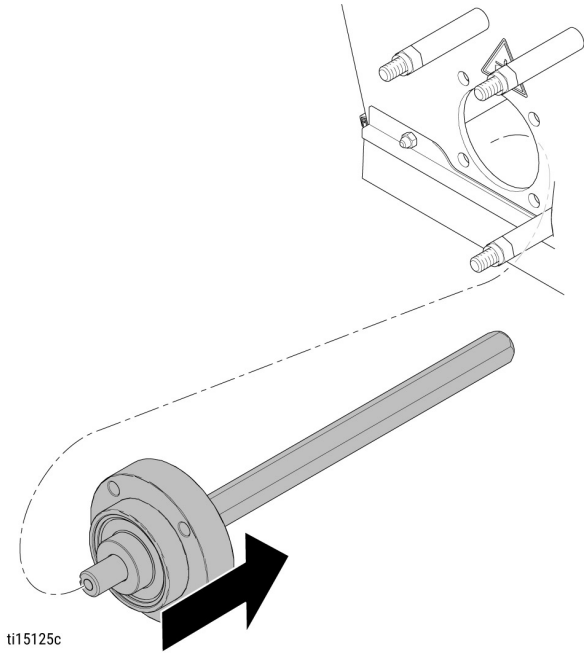
e. Remove bushing from drive shaft. If bushing is very tight, tap a flat-head screwdriver into slot on bushing to open it up and slide off shaft.



4. Remove all four nuts holding drive side bearing onto cage.

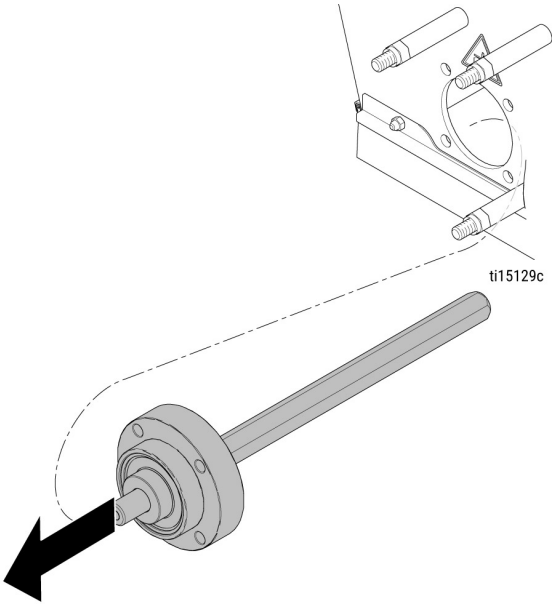


5. Slide shaft assembly out of holes.



DRIVE BEARING ASSEMBLY INSTALLATION

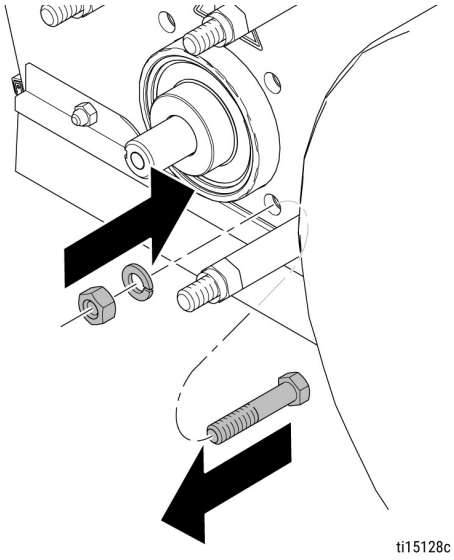
1. Insert new drive bearing assembly into cage.



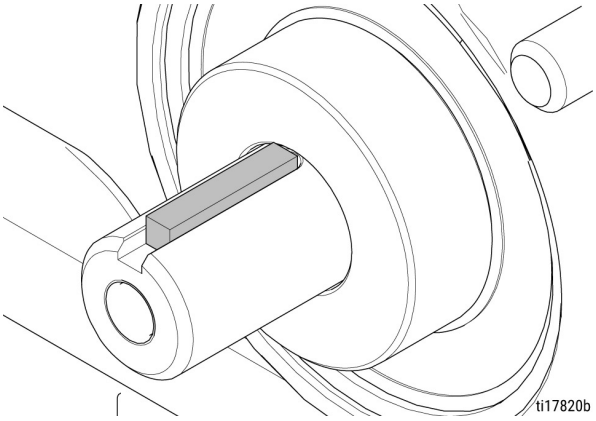
NOTE:

Be sure to use the shorter bolts for the drive side bearing.

2. Tighten nuts and lock washers to hold bearing assembly in place.

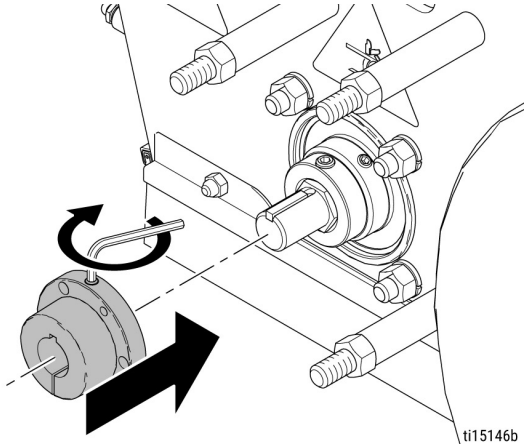


3. Make sure drive shaft key is assembled as shown below.

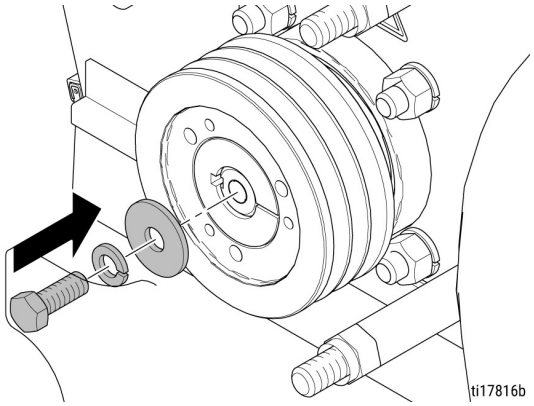


SHEAVE INSTALLATION

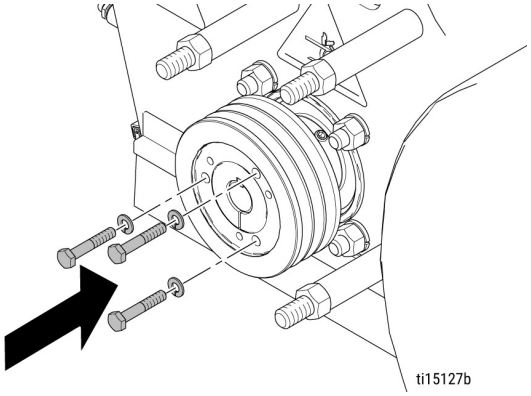
1. Insert bushing onto drive shaft. Make sure key is in place.



2. Apply thread sealant to set screw and install set screw into bushing.
3. Apply thread sealant to bolt and place lock washer and spacer onto bolt as shown. Thread it into the end of the shaft and tighten. Make sure lock washer is fully compressed.



4. Install sheave onto bushing and evenly tighten the three bolts and lock washers to pull the sheave onto the bushing.



5. Replace belt and belt guard. (See **Belt Replacement**).

TROUBLESHOOTING

When problems occur, use the table to identify potential causes and solutions to repair the GrindLazer™.

⚠ WARNING



To avoid injury from unexpected start up, disconnect spark plug wire and black battery cable (electric start models only) before you service your unit.

PROBLEM	CAUSE	SOLUTION
Engine will not start	Engine switch is OFF.	Turn engine switch ON.
	Engine is out of gas.	Refill gas tank (see engine manual.
	Engine oil level is low.	Try to start engine. Fill oil if necessary (see engine manual).
	Spark plug cable is disconnected or damaged.	Connect spark plug cable or replace spark plug.
	Engine is cold.	Use engine choke.
	Fuel shutoff lever is in OFF position.	Move shutoff lever to ON position.
	Oil is seeping into combustion chamber.	Remove spark plug. Pull starter 3 or 4 times. Clean or replace spark plug. Start engine. Keep sprayer upright to avoid oil seepage.
	DCS Models Only: Power Switch is OFF.	Turn Power Switch ON.
	25M994 Model Only: Emergency shut-off switch is OFF.	Turn emergency shut-off switch ON.
	25M994 & 25N659 Models: Not attached to LineDriver.	Attach LineDriver to unit.
Engine operates, LineDriver will not move forward or reverse	Low hydraulic oil	Fill with Mobil 1 (15W-50) synthetic oil
	Wheel release is open	Close; hand tighten.
Engine operates, LineDriver moves slowly in forward or reverse	Low hydraulic oil. Parking brake is set.	Fill with Mobil (15W-050) synthetic oil. Release parking brake.
	Wheel release is open	Close; hand tighten.
Engine shuts off when operator exits LineDriver	Safety switch	Set parking brake
Engine continues to run when operator exits LineDriver and parking brake is not set	Safety switch	Adjust and set parking brake. Replace safety switch and/or any connecting wires.

PROBLEM	CAUSE	SOLUTION
Engine misses during turns and forward and reverse changes	Engine oil low	1. Consult engine manual for proper oil. 2. Keep engine oil full to avoid nuisance stalls caused by Oil Alert sensing low oil levels.
Uneven cut	Unbalanced tire pressure	Check tire pressure to make sure both tires are at 60 ft-lb.
Not cutting	Cutters are worn or damaged	Replace cutters.
Engine runs for short time and stops	Fuel flow restriction	See engine manual
Unit vibrates excessively	Cutters not centered on drum.	Reassemble drum with cutters centered on drum.
	Bearings are starting to wear out.	Replace bearings.
	Cutters are worn or damaged.	Replace cutters.
Groove is not even when using diamond blades	Drum rod is not level with drum adjustment wheels.	Adjust drum adjustment wheels so wheels and hex rod are level.
Engine bogs down while grinding	Depth of cut is too deep.	Raise drum.
	Unit is moving too fast.	Slow down.
Not removing material while cutting	Cutters are worn.	Replace cutters.

DCS MODELS ONLY

PROBLEM	CAUSE	SOLUTION
DCS Control not turning on	Blown fuse on DCS Power wire.	Replace fuse on DCS Power wire.
	Power Switch is OFF or damaged.	Turn Power Switch ON. Replace Power Switch if damged.
	Battery is dead.	Charge Battery.
	DCS Control Board is damaged.	Replace DCS Control Board.
DCS Control runs for short time, then turns off	Engine is not charging the battery. Battery voltage is 14.0-15.0 VDC when engine is full throttle and charging correctly.	Check engine charging coil, voltage rectifier/regulator and fuse inside engine ignition box (25N658 only). Replace or repair if needed.
DCS Control is on, but actutator and/ or drum housing does not move	Actuator is disconnected from DCS Control.	Check all connections.
	A DCS Control Switch is pressed or defective.	Ensure all switches are not stuck. Replace switches if defective.
	Actuator rod is stuck.	Manually move the actuator rod using the Manual Height Adjustment feature. Remove screw plug on top of the actuator, then use 6mm hex key to move the rod.
	Actuator or DCS Control Board is damaged.	See flow chart **DCS Actuator Rod Does Not Move**.
	Battery is low.	Charge battery.
	Drum housing is latched into the "up" position.	Use the Drum Engage Lever to unlatch the drum housing and lower the depth control wheels to the pavement surface.
DCS display does not match Cut Depth.	DCS Control needs to recalibrate its position.	Restart the DCS Control.
	Zero Position is not set to the pavemet surface.	Reprogram the Zero Position. See manual 3A5918.
	The wrong GrindLazer model is selected on the DCS Control.	Select the correct model on DCS Control. See manual 3A5918.
DCS Control Buttons work, but display is blank	The display is unplugged or damaged.	Check that the display ribbon cable and red/white wire are connected inside Control Box. Replace if damaged.

DCS ERROR CODES

To clear an error code on the DCS Control:

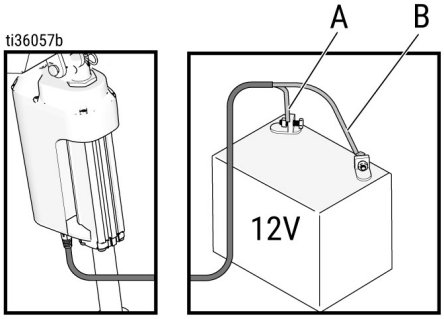
1. Turn DCS Power Switch to OFF.
2. Address/fix the issue.
3. Turn DCS Power Switch to ON

ERROR	CAUSE	SOLUTION
E04: High Voltage (20VDC or greater, measured across battery posts)	Battery is damaged.	Replace battery.
	Engine voltage rectifier/regulator is damaged.	Replace engine voltage rectifier/ regulator.
E05: High Motor Current (15 Amps or greater, measured on blue or brown actuator wire)	Actuator rod is stuck.	Manually move the actuator rod using the Manual Height Adjustment feature.
	Too high of load.	Adjust the drum height while the drum is above the pavement surface. This can be done by latching the drum housing to the rear frame by pushing down on the handlebars.
E08: Low Voltage (7VDC or lower, measured across battery posts)	Battery is low/dead.	Charge battery.
	Engine is not charging the battery.	Check the engine charging coil and voltage rectifier/regulator. Replace or repair if needed.
E09: Hall Sensor Error	Actuator Signal Cable is disconnected from DCS Control or is damaged.	Check all connections. Repair or replace if needed.
	Actuator or DCS Control Board is damaged.	See flow chart **DCS Actuator Rod Does Not Move**.
E12: High Current (short circuit, 60 amps or greater, measured on red or black wire between battery and DCS Control)	A wire or board component has shorted.	Check all wires for shorts. If all wires are okay, the DCS Control board may be damaged and need to be replaced.
E31: Home Button Error	The Home Button is stuck or shorted.	Check to see if Home Button is stuck. If not stuck, replace the Home Button switch.
E32: Zero Button Error	The Zero Button is stuck or shorted.	Check to see if Zero Button is stuck. If not stuck, replace the Zero Button switch.
E33: Cut Depth Button Error	The Cut Depth Button Error is stuck or shorted.	Check to see if Cut Depth Button is stuck. If not stuck, replace the Cut Depth Button switch.

ERROR	CAUSE	SOLUTION
E34: Up Button Error	The Up Button or Handlebar Rocker Switch is stuck or shorted.	Disconnect Handlebar Rocker Switch from the DCS Control. Clear the error code. If the error code reappears 30 seconds after turning the Power Switch back ON, the problem is the Up Button on the DCS Control. Check to see if the Up Button is stuck. If not stuck, replace the Up Button Switch. If the error code does not reappear 30 seconds after turning the Power Switch back ON, the problem is the Handlebar Rocker Switch. Check to see if the switch is stuck. If not stuck, replace the Handlebar Rocker Switch.
E35: Down Button Error	The Down Button or Handlebar Switch is stuck or shorted.	Disconnect Handlebar Rocker Switch from the DCS Control. Clear the error code. If the error code reappears 30 seconds after turning the Power Switch back ON, the problem is the Down Button on the DCS Control. Check to see if the Down Button is stuck. If not stuck, replace the Down Button Switch. If the error code does not reappear 30 seconds after turning the Power Switch back ON, the problem is the Handlebar Rocker Switch. Check to see if the switch is stuck. If not stuck, replace the Handlebar Rocker Switch.

DCS ACTUATOR ROD DOES NOT MOVE

Use this flow chart if the DCS Actuator Rod does not move or if the DCS displays error code E09 (Hall Sensor Error). Reference **Electrical Schematic**.

Turn power switch to OFF. Remove the blue shroud behind the DCS Control. Ensure you have a good 12V battery installed. Disconnect the actuator motor wires and signal cable from the DCS Control. Connect a multimeter between the blue and brown wires on the DCS Control. Turn the power switch to ON. Measure the voltage (DC) within 10 seconds of turning the power on. Does it measure at least 3.0 VDC?	**NO**	Replace DCS Control Board.
YES		
 Connect the blue and brown wires on the actuator to a good 12VDC battery. First tru with the blue wire on positive post and brown wire on negative post. If the actuator rod does not move, put the blue wire on the negative post and the brown wire on the positive post. Does the rod move in either case?	**NO**	Replace actuator.
YES		
Within 10 seconds of turning the power switch to ON (while connected to a good battery), measure the voltage (DC) between the red and black wires on the actuator signal cable coming from the DCS Control. Does it measure at least 10 VDC.	**NO**	Replace DCS Control Board.
YES		
Reconnect the actuator motor wires and signal cable from the actuator to the DCS Control. Turn the power switch to ON. Does the DCS Control display the Run Screen within 5 seconds.	**NO**	Replace actuator.
YES		
Replace DCS Control Board.		

A	Blue
B	Brown

The wiring diagram illustrates the electronic connections that are useful for troubleshooting and repairing the electrical components of the GrindLazer™.

DCS SYSTEM

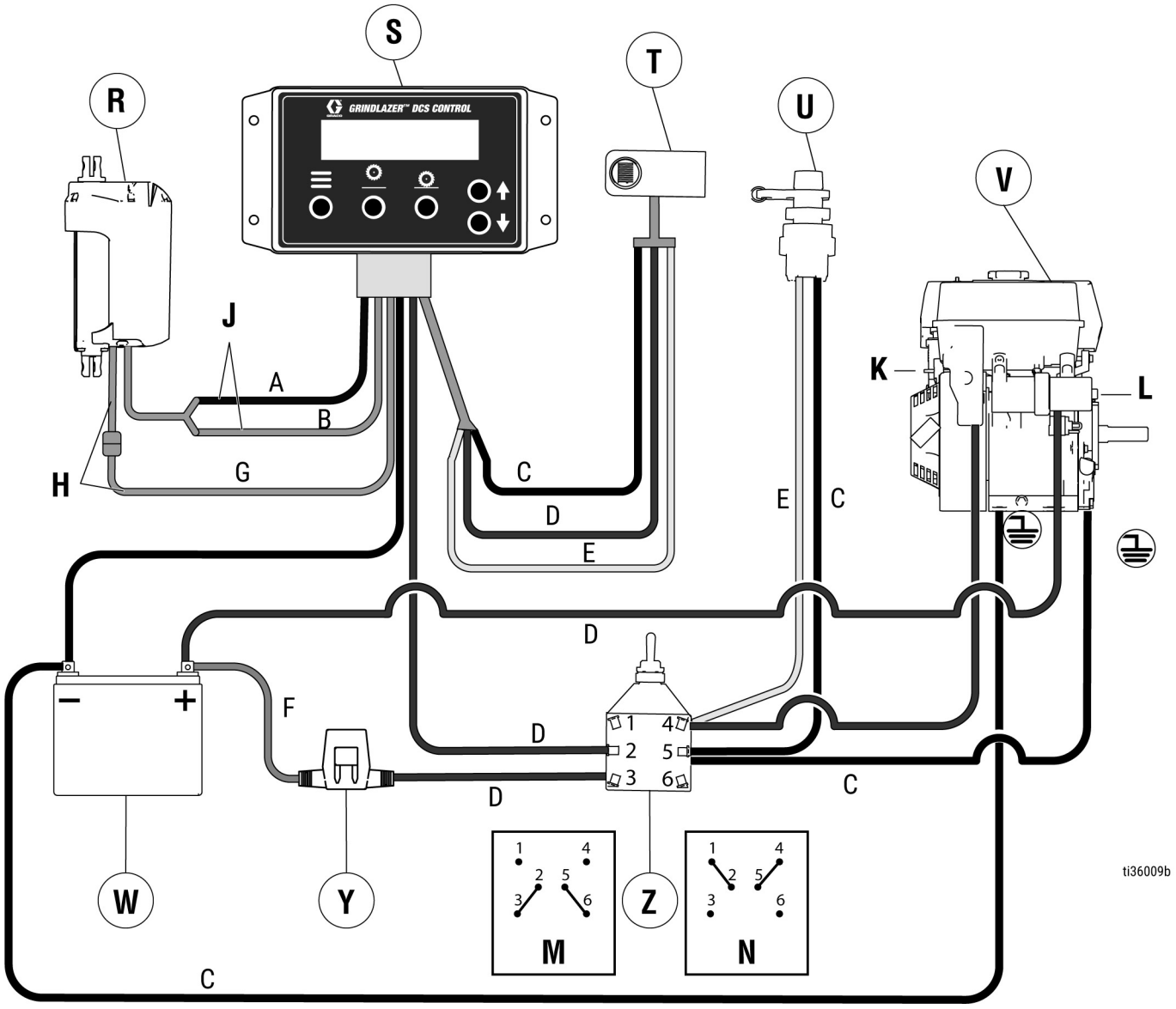


Figure 10-1: Wiring Diagram for DCS System

KEY	
A	Brown
B	Blue
C	Black
D	Red
E	White
F	Orange
G	Gray
H	Actuator Signal Cable
J	Actuator Motor Wires
K	Ignition
L	Starter
M	Toggle Up (Power ON)
N	Toggle Down (Power OFF)
R	Actuator
S	DCS Control
T	Handlebar Rocker Switch
U	Engine Kill Button
V	Engine
W	Battery (115753)
Y	20A Fuse (17Z342)
Z	Power Switch (17Z193)

DCS CONTROL BOX

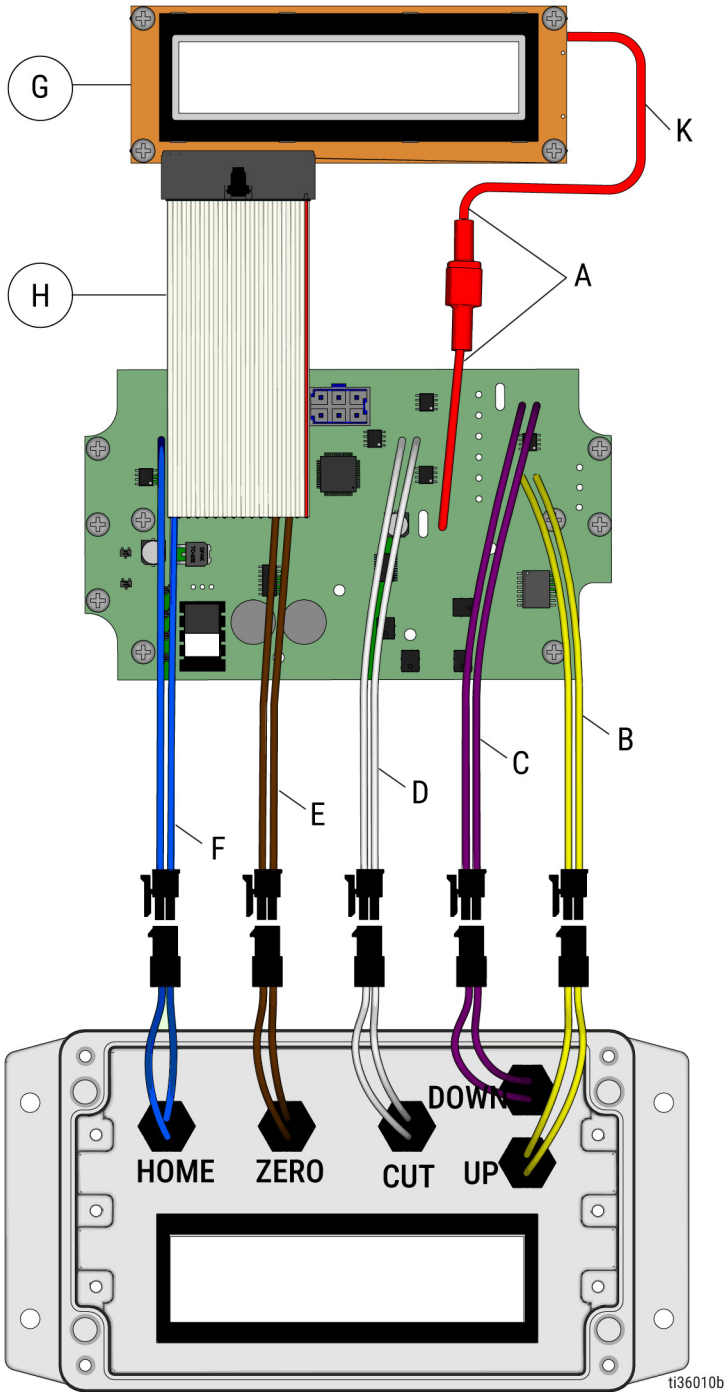


Figure 10-2: Wiring Diagram for DCS Control Box

KEY	
A	Red
B	Yellow
C	Violet
D	White
E	Brown
F	Blue
G	Display Board
H	Ribbon Cable
K	Powers Display

CALIFORNIA PROPOSITION 65

CALIFORNIA RESIDENTS

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

⚠**WARNING:** Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reprodutive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information, go to www.P65warnings.ca.gov/diesel.

NOTES

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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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