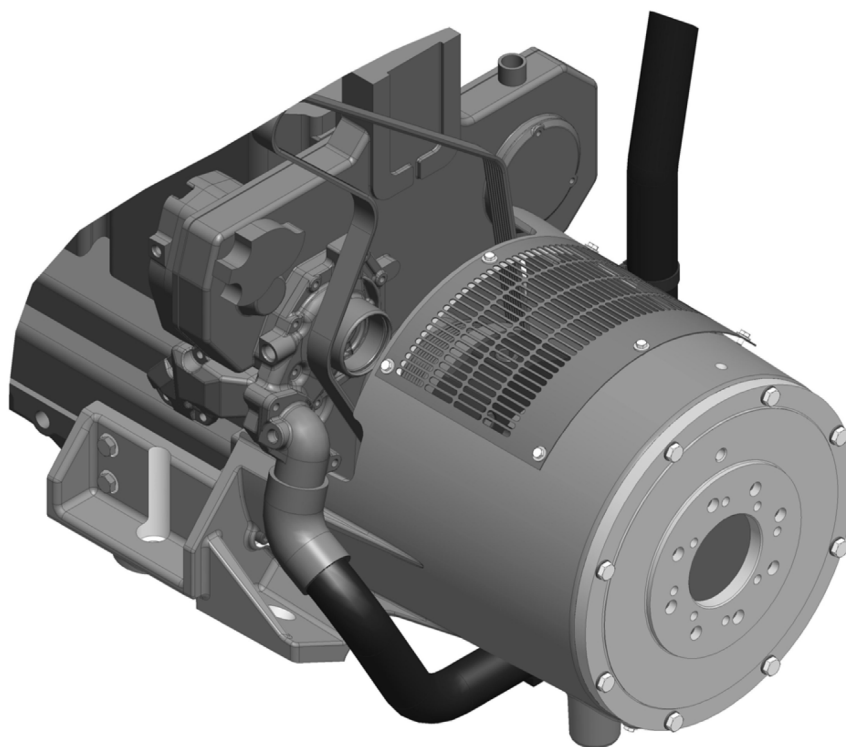


POWER TAKE-OFF KITS FOR KOHLER MARINE GENERATORS

80-150EOZDJ/EOZCJ AND 70-125EFOZDJ/EFOZCJ

Installation, Operation and Maintenance Instructions



Logan Clutch Corporation®
manufacturers of clutches and brake products

28855 Ranney Parkway • Cleveland, OHIO 44145
(440) 808-4258 • FAX (440) 808-0003 • 1-800-5-CLUTCH or 1-800-525-8824
www.loganclutch.com • sales@loganclutch.com

053-0148

Rev 0
April 2021

This manual provides basic installation, operating, and maintenance information regarding Logan PTO Kits for Kohler Marine Generators.

All Logan PTO Clutches are designed, manufactured, and tested to provide consistent performance and reliability. Please visit our website at: www.loganclutch.com for any recent updates in design, maintenance and operation – or contact Logan Clutch Corporation directly at 1-800-525-8824; via Fax: 1-440-808-0003

THE CORPORATION

Family owned and operated since 1975, Logan offers a complete line of Fluid / Air actuated Clutches, Brakes, PTO Clutches and Clutch Discs for a variety of wet and dry clutch and brake applications in the Machine Tool, Industrial, Marine, Irrigation, Rail, Oil Field, and Off-Highway industries.

Applications include: Trenchers, Tunnel Boring and Snow Removal Equipment, Single and Multi-Speed Transmissions, Marine Transmissions, Work Boats, Machine Tools, Screw Machines and all types of industrial applications.



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The Logan warranty does not cover clutch failure due to over-pressurization. The highest pressure values in the torque tables are maximum ratings for Logan Clutches.

All rotating components present a potentially hazardous condition and should be guarded in accordance with OSHA requirements and other applicable laws, regulations and industrial standards.

Torsional Damping Devices for Logan Products: Torsional compatibility tests rest solely with the assembler and user. Logan accepts no liability for noise, vibration, and premature failure of Logan PTO's or damage to clutch components caused by incorrectly specified torsional damping devices, or engine vibration. It is the buyer's responsibility to specify this option, which can result in additional cost and a possible increase in installation length. Logan can accept no liability for personal injury, loss of life, or damage or loss of property due to the failure of the buyer to improperly apply Logan Products.

Logan Clutch Corporation reserves the right to modify product specifications and designs without notice and without incurring obligations. Torque values are based upon wet disc packs having full contact between surfaces.



Original Issue Date: 4/2021

Kohler Model: 80-150EOZDJ/EOZCJ and 70-125EFOZDJ/EFOZCJ

Market: Marine

Subject: Power Take-off Kits

Use these instructions to install the power takeoff (PTO) kit. The PTO option allows users to mount a hydraulic pump to power bow or stern thrusters. See Figure 1 for PTO specifications and application information.

Note: Be advised that your PTO assembly includes a rubber flexible coupling. High transient loading (i.e. abrupt load changes, high load-unload cycle variations, hydraulic pump operation during genset paralleling) and high ambient temperature will shorten the life of the flexible coupling.

Note: Do not install these PTO kits on generator sets equipped with radiators.

Note: These PTO kits are only available with rectangular focus mounts.

Note: The maximum weight that can be mounted to the end of the PTO housing is 300 lbs. The center of gravity (CG) of the pump must be less than 12 in. from the mounting plate.

80/99EOZDJ and 70/80EFOZDJ Models: Before installing the PTO kit on generator sets **equipped with a sound shield**, order an adapter panel kit. The adapter panel kit includes two new panels and mounting hardware. See Figure 2 for PTO adapter panel kit selection.

125/150EOZDJ and 100/125EFOZDJ Models: Do not install PTO kits on units equipped with a sound shield.

Diesel Generator Models	80EOZD(C)J/70EFOZD(C)J 99EOZD(C)J/80EFOZD(C)J		125EOZD(C)J/ 100EFOZD(C)J 150EOZD(C)J/ 125EFOZD(C)J	
Kit Part Number	900-8301-03	900-8301-04	900-8302-01	900-8302-02
PTO Type ¹	Pneumatic (120 psi) or Hydraulic(200 psi) Actuation			
SAE Pump Flange Size	SAE C 2/4 bolt	SAE B 2/4 bolt	SAE C 2/4 bolt	SAE B 2/4 bolt
Clutch Spline/Key Options ²	SAE J744 B, B-B,C,D, ANSIB92.1 21, 23, 27t			
Static Rated Torque	600 Lb.Ft. (814 Nm)			
Maximum Hydraulic Pump Horsepower (HP):	<p>A) Load starts under pump pressure or shifting / cycling load. Maximum pump HP=27 HP at 1800 rpm, 22.5 HP at 1500 rpm.</p> <p>B) Steady load starts at zero pressure and no shifting / cycling. Maximum pump HP=55 HP at 1800 rpm, 45 HP at 1500 rpm.</p>			
Pump HP Determination:	$HP (1800) = \frac{CIR \times psi}{220}$ $HP (1500) = \frac{CIR \times psi}{264}$ <p>CIR = Pump displacement, cubic inch es per revolution</p>			
Torque(T) to HP calculation:	$HP = \frac{T(in.lbs.)}{63025/RPM}$			

¹Clutch specified and ordered separately.

²Standard clutch options listed. Consult with Logan Clutch Corp. for other options.

Note: John Deere allowable limit off the crank shaft is 458 lb. ft.(621Nm)

Figure 1
PTO Specifications and Application Information

Generator Model	If Equipped with Sound Shield Kit Number	Use PTO Adapter Panel Kit Number	If Equipped with UMS Sound Shield Kit Number	Use UMS PTO Adapter Panel Kit Number
70/80EFOZDJ 80/99EOZDJ	GM87198-KP1 or GM87198-KP2	930-0004	GM88268-KP1 or GM88268-KP2	930-0009

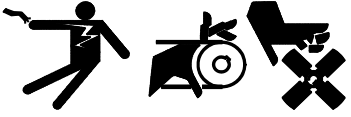
Figure 2 PTO Adapter Panel Kit Selection (80/99EOZDJ and 70/80EFOZDJ, Units with Sound Shields Only.)

Read the entire installation procedure and compare the kit parts with the parts list at the end of the instructions before beginning the installation. Perform the steps in order.

Safety Precautions

Observe the following safety precautions while installing this kit.

⚠ WARNING

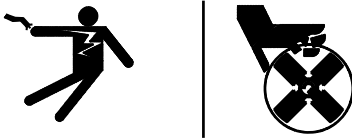


**Accidental starting.
Can cause severe injury or death.**

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

⚠ DANGER



**Hazardous voltage. Moving parts.
Will cause severe injury or death.**

Operate the generator set only when all guards and electrical enclosures are in place.

Servicing the generator set when it is operating.
Exposed moving parts will cause severe injury or death.
Keep hands, feet, hair, clothing, and test leads away from the belts and pulleys when the generator set is running. Replace guards, screens, and covers before operating the generator set.



Note: Read all safety precautions at the beginning of this publication before performing any work on the generator set.

1. Remove the generator set from service.

- 1.1 Press the generator set OFF/RESET button to shutdown the generator set.
- 1.2 Disconnect the power to the battery charger, if equipped.
- 1.3 Disconnect the power to the block heater, if equipped.
- 1.4 Disconnect the generator set engine starting battery(ies), negative (-) lead first.

2. Remove the sound shield front panel, if equipped.

Remove the sound shield's front panel. Discard the front panel. See Figure 3 for identification.

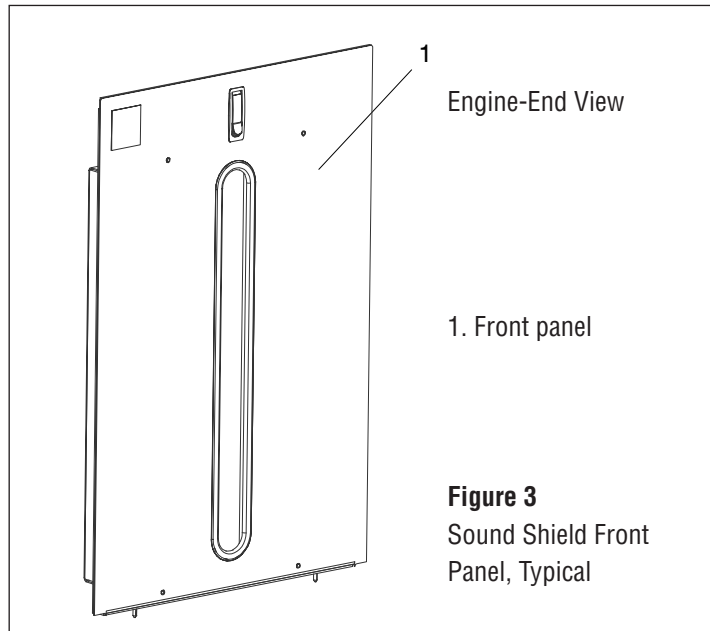


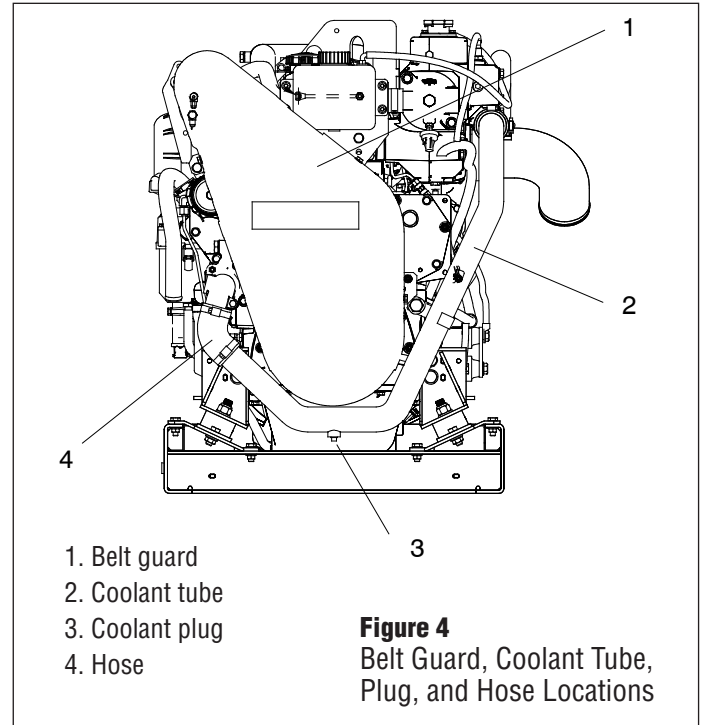
Figure 3
Sound Shield Front Panel, Typical

3. Remove the belt guard and coolant tube.

- 3.1 Remove and discard the belt guard. Save the mounting hardware and brackets. See Figure 4.
- 3.2 Remove the coolant drain plug and allow the coolant to drain completely.

Note: Dispose of all waste materials (engine oil, fuel, filter, etc.) in an environmentally safe manner and in accordance with all applicable laws.

- 3.3 Remove the existing coolant tube, coolant plug, and hose. See Figure 4 for locations. Discard the coolant tube, plug, and hose. Save the hose clamps.



1. Belt guard
2. Coolant tube
3. Coolant plug
4. Hose

Figure 4
Belt Guard, Coolant Tube, Plug, and Hose Locations

4. Install the clutch.

- 4.1 For 900-8301-03 and -04 Kits: Attach the rigid coupling (088-0076) to the engine crankshaft pulley using 4 screws (063-0009). Apply Loctite 243 (or equiv.) and torque to 69 Nm (51 ft. lbs.) See Figure 5.

For 900-8302-01 and -02 Kits: Attach the rigid coupling (088-0077) to the engine crankshaft pulley using 6 screws (063-0127). See Figure 5. Apply Loctite 243 (or equivalent) and torque to 69 Nm (51 ft. lbs.)

- 4.2 Mount the flexible coupling (086-0009) to the PTO drive hub using the 4 hex socket head screws supplied with the coupling. Torque the screws to 220 Nm (162 ft. lbs.).
- 4.3 Install the 4 axial screws found with the torsional coupling (086-0009) to the clutch input flange. Torque the screws to 220 Nm (162 ft. lbs.).

Note: Do not use any anaerobic adhesives (i.e. Loctite®) or hydrocarbon based lubricants on coupling screws. Lubricate the contact face of the radial screw heads and the surface of the axial screws with petroleum jelly during installation.

Loctite® is a registered trademark of Loctite Corporation.



INSTALLATION PROCEDURE

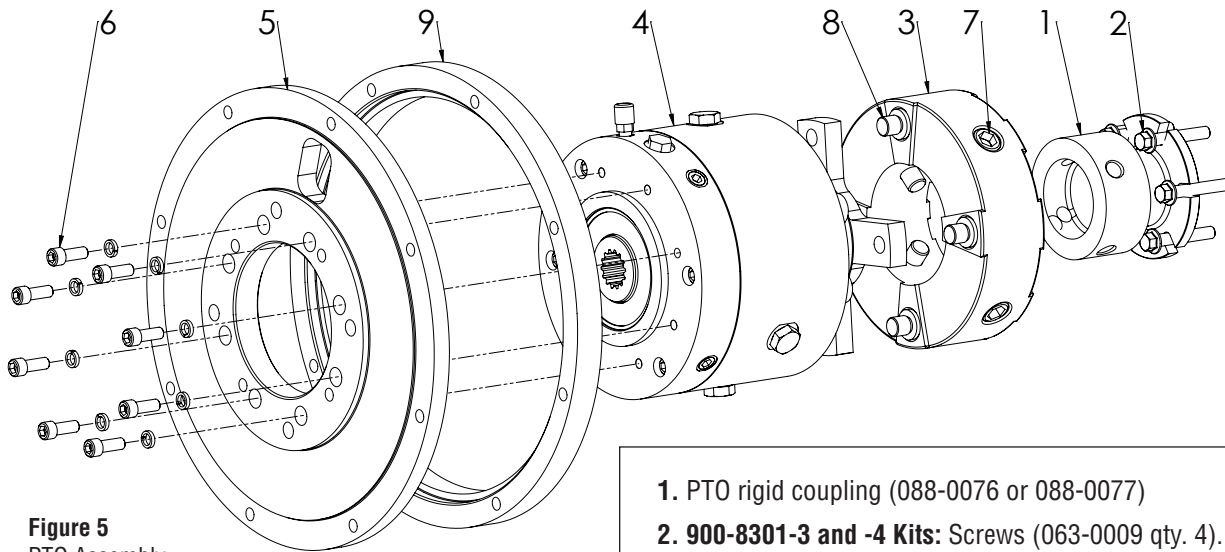


Figure 5
PTO Assembly

- 4.4 Raise the generator set (engine end) using a hoist and remove the 2 engine mounts (LH and RH). Save the mounting hardware.
- 4.5 Position the PTO housing (070-0032) over the PTO assembly.
- 4.6 Secure the clutch mounting plate (082-0170 or 082-0171) onto the clutch using 8 screws and lock washers. Torque the screws to 40 Nm (30 ft. lbs.). **Note:** Mount the clutch with the breather at 12 o'clock.
- 4.7 900-8302-01 and -02 **ONLY:** position housing spacer (076-0901) onto the end of the PTO housing, aligning the thru holes with the tapped holes in the PTO housing. This step applies to the JD6068AFM85 engine only.
- 4.8 Attach the clutch mounting plate to the PTO housing using 8 screws and 8 washers (075-0129). **900-8301-03 and -04:** use screws (063-0105). **900-8302-01 and -02:** use screws (063-0093). Apply Loctite 243 (or equiv.) and torque the screws to 49 Nm (36 ft. lbs.).
- 4.9 Fasten the lower portion of the PTO housing (070-0032) to the engine block using 4 screws (063-0047) and 2 screws (047-0342) to the torque specifications shown in figure 6, items 1 and 2.

1. PTO rigid coupling (088-0076 or 088-0077)
2. **900-8301-3 and -4 Kits:** Screws (063-0009 qty. 4). Attach to engine crankshaft pulley. Apply Loctite 243 (or equiv) and torque to 69Nm (51 ft. lbs.)
900-8302-01 and -02 Kits: Screws (063-0127 qty. 6). Attach to engine crankshaft pulley. Apply Loctite 243 (or equiv) and torque to 69Nm (51 ft. lbs.)
3. Torsional coupling (086-0009)
4. Pneumatic / Hydraulic clutch (SPF clutch series)
5. Clutch mounting plate (082-0170 or 082-0171)
6. Screws and lock washers (047-0011 qty. 8). Torque to 40 Nm (30 ft. lbs.).
7. Hex socket head screws (qty.4) supplied with torsional coupling. Torque to 220 Nm (162 ft. lbs.)
8. Hex socket head screws (qty.4) supplied with torsional coupling. Torque to 220 Nm (162 ft. lbs.)
9. Housing spacer (076-0901). Used on 900-8302-01 and -02 **ONLY** for the JD 6068AFM85.

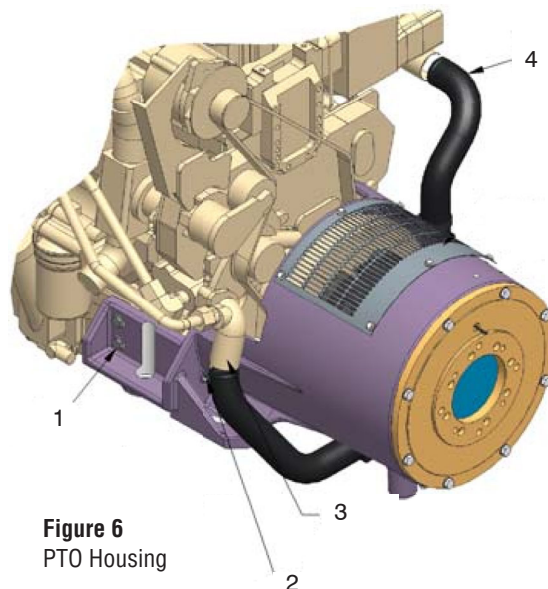


Figure 6
PTO Housing

1. Use existing washers and screws (063-0047 qty. 4). Torque to 80 Nm (59 ft. lbs.)
2. Screws (047-0342 qty. 2). Torque to 278 Nm (205 ft. lbs.)
3. Use existing hose and clamps.
4. Coolant tube (931-0001 or 931-0020)

4.9a **For 900-8301-03 and -04 Kits:** Position the engine mounts (931-0021) as shown in Figure 7.

Lower the generator set.

Reuse the existing engine mount hardware (saved in Step 4.4) to secure the engine mounts to the skid. See Figure 7.

4.12 Confirm that the generator set is OFF.

4.13 Verify that the generator set engine starting battery is disconnected.

4.14 Install clutch actuation line to SAE-6 o-ring port on clutch, located at the one o'clock position. Add lubrication oil to clutch input housing. For specific actuation and lubrication requirements consult with SPF series installation, operations, and maintenance manual, part no. 053-0049.

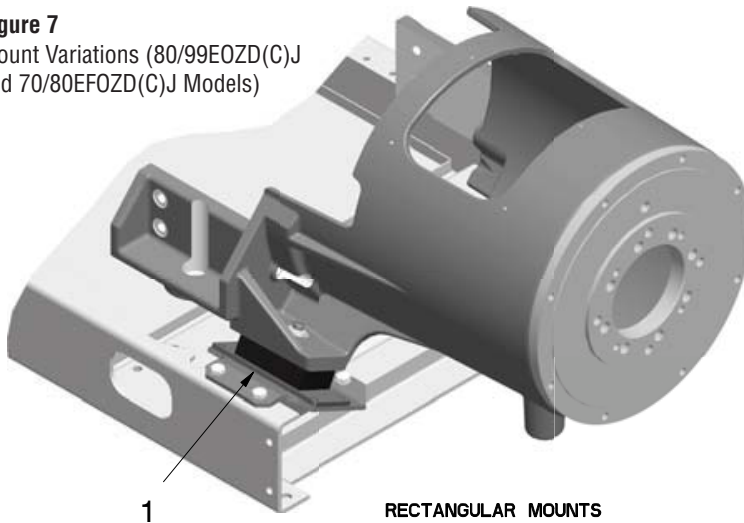
5. Remove oil fill tube and spacer (kits 900-8301-03 and 900-8301-04 only).

5.1 Remove the oil fill tube and spacer. Save the gasket.

5.2 Mount the coverplate (931-0022) using 2 screws (063-0108), 2 washers (075-0121), and the gasket removed in Step 5.1. See Figure 10.

Note: Use oil fill on valve cover.

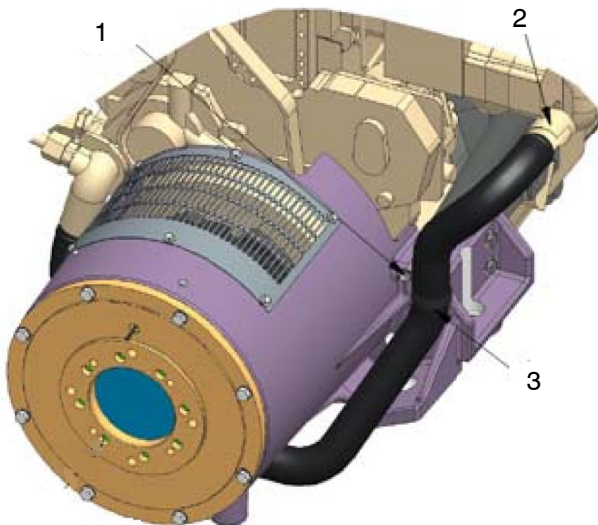
Figure 7
Mount Variations (80/99EOZD(C)J and 70/80EFOZD(C)J Models)



1. Rectangular mounts (931-0021 qty. 2). Use existing hardware on engine end only.

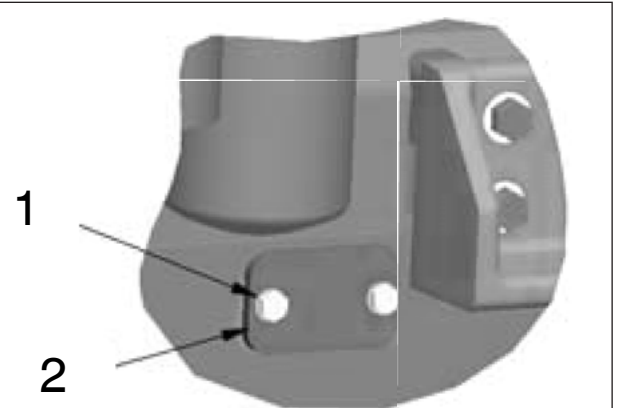
4.10 Position the coolant tube (931-0001 or 931-0020) as shown in Figure 6. Connect the coolant tube to the existing hose on the engine using the existing hose clamps.

4.11 Secure the coolant tube as shown in Figure 8 using a clamp (931-0003), and screw (063-0032).



1. Screw (063-0032)
2. Use existing hose and clamps
3. Clamp (931-0003)

Figure 8
PTO Guard and
Coolant Tube



1. Screws (063-0108 qty. 2), washers (075-0121 qty. 2), and existing gasket.
2. Coverplate (931-0022)

Figure 10
Coverplate Location (80/99EOZD(C)J and 70/80EFOZD(C)J Models)



INSTALLATION PROCEDURE

6. Restore the generator set to service.

- 6.1 Replenish the coolant. See the generator set specification sheet for cooling capacities. See the generator set operation manual for the coolant fill procedure.
- 6.2 Check that the generator set is OFF.
- 6.3 Reconnect the generator set engine starting battery, negative (-) lead last.
- 6.4 Reconnect power to the battery charger, if equipped.

Note: Block Heater Damage. The block heater will fail if the energized heater element is not immersed in coolant. Fill the cooling system before turning on the block heater. Run the engine until it is warm, and refill the radiator to purge the air from the system before energizing the block heater.

- 6.5 Reconnect power to the block heater, if equipped.
- 6.6 Engage and disengage the clutch several times, checking that the actuation pressure is 110/120 psi (7.5/8.3 Bar) range for pneumatic actuation. In addition, check that the clutch quickly disengages from peak pressure to zero pressure by observing a pressure gauge.
- 6.7 Secure the PTO guard (931-0002) on the top of the PTO housing using 6 screws (063-0142) and 6 washers (075-0003). See Figure 10.
- 6.8 Secure the PTO guard (931-0019) on the bottom of the PTO housing using 4 screws (063-0142) and 4 washers (075-0003).
- 6.9 Refer to Figure 1 to identify the torque specifications for tool use.

7. Install the sound shield panels, if equipped.

- 7.1 Install the sound shield's front panel with the parts identified in Figure 11.

8. Replace the belt guard, for units without sound shields.

- 8.1 For units without a sound shield, position the belt guard (931-0016 or 931-0017) as shown in Figure 12. Secure the belt guard using the hardware and brackets that were removed in step 3.1.

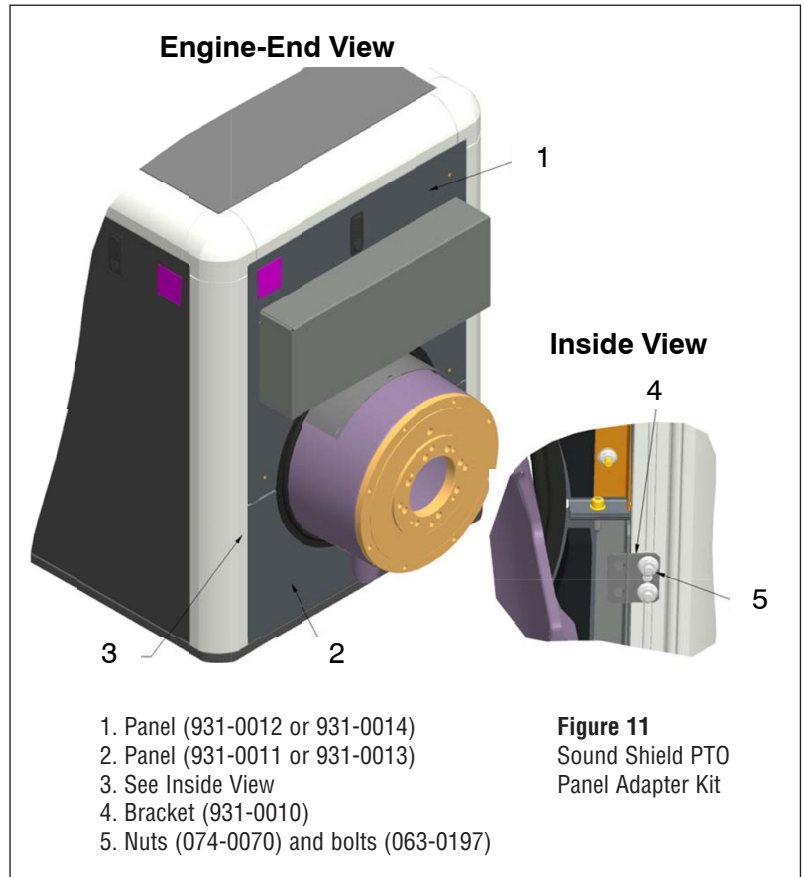


Figure 11
Sound Shield PTO
Panel Adapter Kit

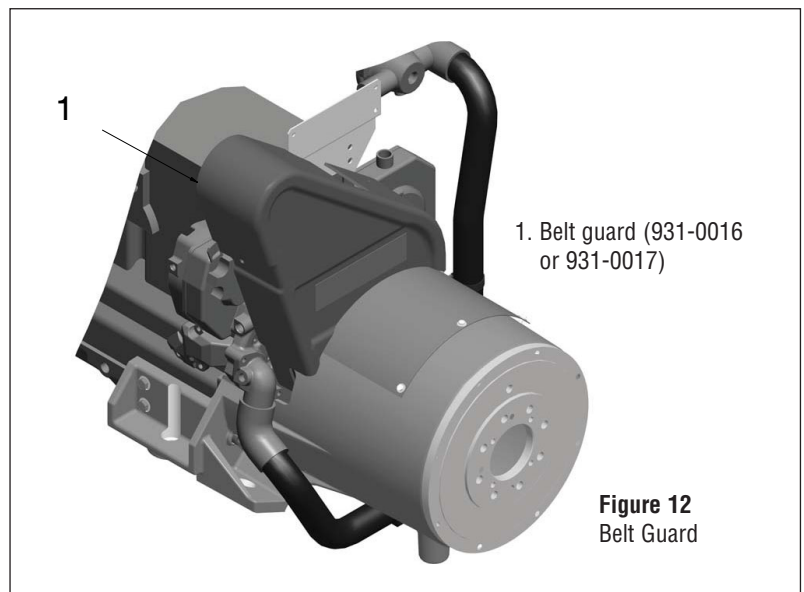


Figure 12
Belt Guard



1. Pneumatic / Hydraulic clutch (SPF-600 series)
2. PTO rigid coupling (088-0076 or 088-0077)
3. Kits 900-8301-03 and -04: Screws (063-0009 qty. 4). Apply Loctite #243 and torque to 69 Nm (51 ft. lbs.) Kits 900-8302-01 and -02: Screws (063-0127 qty. 6). Apply Loctite #243 and torque to 69 Nm (51 ft. lbs.)
4. Torsional coupling (086-0009). Use the hex socket head screws (qty. 4) supplied with the coupling to attach to the clutch rigid coupling and use the hex socket head screws (qty. 4) supplied with the coupling to attach to the clutch input flange. Torque to 220 Nm (162 ft. lbs.)
5. PTO guard (931-0002), screws (063-0142 qty. 6) and washers (075-0003 qty. 6)
6. Use existing hose and clamps supplied with the engine.
7. Screws (063-0047 qty. 4). Use existing washers and torque to 80 Nm (59 ft. lbs.). Apply Loctite 243 (or equiv.) to this hardware.
8. Screws (047-0342 qty. 2). Torque to 278 Nm (205 ft. lbs.)
9. PTO housing (070-0032)
10. Use existing hose and clamps supplied with the engine.
11. Screw (063-0032)
12. Kits 900-8301, -03 and -04: Screws (063-0105 qty. 8) and washers (075-0129 qty. 8) Apply Loctite #243 and torque to 49 Nm (36 ft. lbs.) Kits 900-8302-01 and -02: Screws (063-0093 qty. 8) and washers (075-0129 qty. 8) Apply Loctite #243 and torque to 49 Nm (36 ft. lbs.)
13. Clutch mounting plate (082-0170 or 082-0171)
14. Screws (047-0011 qty. 8). Torque to 40 Nm (30 ft. lbs.)
15. Coolant tube (931-0001 or 931-0020) Remove and discard coolant tube supplied with engine.
16. Insulated clamp (931-0003)
17. PTO guard (931-0019)
18. Washers (075-0003 qty. 4) and screws (063-0142 qty. 4)
19. Housing spacer - not shown (076-0901). Used on 900-8302-01 and -02 ONLY for the JD 6068AFM85.

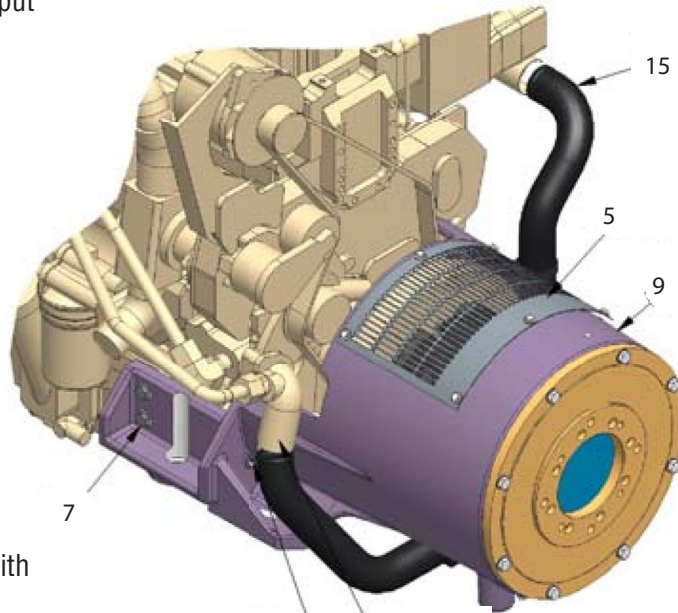
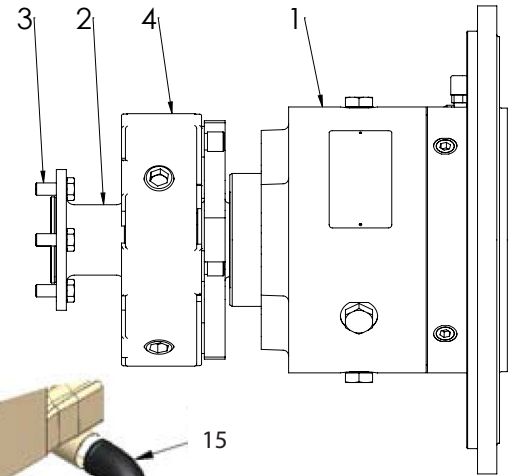
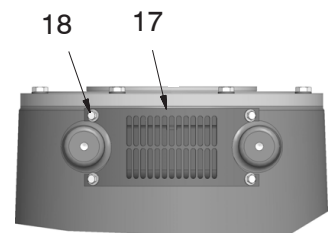
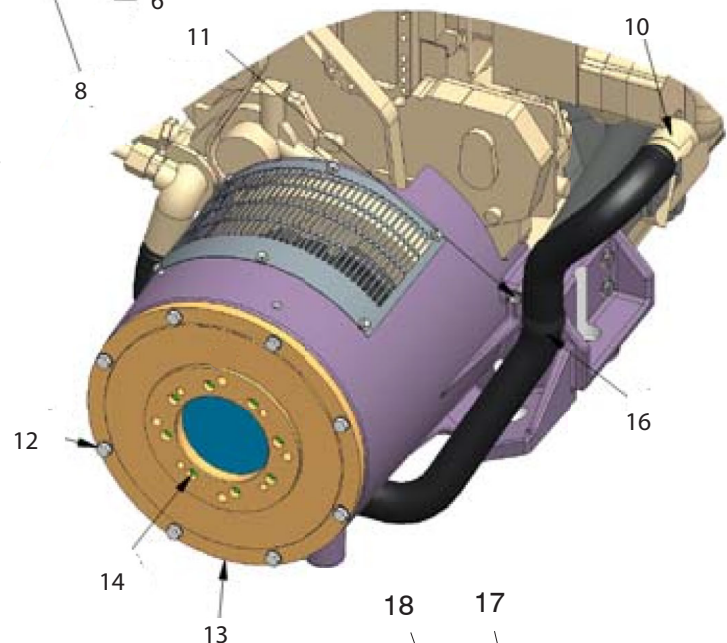


Figure 13
PTO Assembly



BOTTOM GUARD ASSEMBLY VIEW



8. Bill of Material Pneumatic / Hydraulic Clutch PTO Kits

Kits: 900-8301-03, 900-8301-04, 900-8302-01, and 900-8302-02						
Qty.	Description	Common Parts	Unique Parts			
			900-8301-03	900-8301-04	900-8302-01	900-8302-02
1	Housing, PTO	070-0032				
1	Rigid coupling		088-0076	088-0076	088-0077	088-0077
1	Coupling, torsional	086-0009				
1	Tube, coolant		931-0001	931-0001	931-0020	931-0020
1	Guard, PTO (top)	931-0002				
8	3/8-16 UNC x 1.00 LG. S.H.C.S.	047-0011				
8	Washer, M10	075-0129				
1	Clutch, pneumatic or hydraulic	Sold Separately				
1	Plate-clutch mounting		082-0170	082-0171	082-0170	082-0171
10	M6 x 1x 10 LG. Hex. Hd. Screw	063-0142				
8	M10 x 1.5 x 35 LG. Hex. Hd. Screw		063-0105	063-0105		
8	M10 x 1.5 x 60 LG. Hex. Hd. Screw				063-0093	063-0093
4	M10 x 1.5 x 25 LG. Hex. Hd. Screw		063-0009	063-0009		
6	M10 x 1.5 x 60 LG. Hex. Hd. Screw				063-0127	063-0127
2	M16x 2.0 x 50 LG. S.H.C.S.	047-0342				
1	M6 x 1x 12 LG. Hex. Hd. Screw	063-0032				
4	M12 x 1.75x 40 LG. Hex. Hd. Screw	063-0047				
10	Washer, M6	075-0003				
8	Lockwasher -3/8	075-0030				
1	Clamp (2 in. ID)	931-0003				
1	Cover, plate		931-0022	931-0022		
2	Washer, 5/16		075-0121	075-0121		
2	M8 x 1.25 x 25 LG. Hex. Hd. Screw		063-0108	063-0108		
2	Mount, Front of Engine		931-0021	931-0021		
1	Housing Spacer				076-0901	076-0901
1	Guard, PTO (bottom)	931-0019				

PTO Panel Adapter Kits (for sound enclosures)

Kits: 930-0004 and 930-0009				
Qty.	Description	Common Parts	Unique Parts	
			930-0004	930-0009
1	Panel		931-0011	931-0013
1	Panel		931-0012	931-0014
2	Bracket	931-0010		
4	Nut, flange 5/16-18 UNC	074-0070		
4	Bolt, carriage 5/16-18 UNC x .75	063-0197		

Note: If PTO Panel Adapter Kit is not required then a belt guard is required, p/n 931-0016 (for 900-8301-03 and -04)
OR p/n 931-0017 (for 900-8302-01 and -02)

I. GENERAL PROVISIONS AND CONDITIONS

A. NATURE OF CONTRACT AND NAMES OF PARTIES. This is an agreement for the sale of clutch goods between Logan Clutch Corporation ("Logan Clutch") of 28855 Ranney Parkway, Westlake, Ohio 44145 and Purchaser. This agreement was drafted and executed in the City of Westlake, County of Cuyahoga, state of Ohio. Logan Clutch recognizes that Purchaser may desire to use its own acknowledgment form to reflect this agreement; however, any provisions in Purchaser's acknowledgment form which modify, conflict with or contradict any provisions of this agreement, shall not be binding between the parties. An acceptance of any of the goods covered by this agreement shall constitute an acceptance of these terms and conditions and shall constitute the entire contract between us.

B. INTEGRATED AGREEMENT. The approval and acceptance of Purchaser's order is based upon the written requirements provided by Purchaser. The parties agree and understand that no verbal alteration or agreement between Purchaser and any agent of Logan Clutch shall be binding upon Logan Clutch. Purchaser acknowledges that it has not relied upon any sample, model, description or exact technical specifications in placing its order. The parties intend the terms of this agreement to be the final, complete and exclusive expression of their agreement.

C. CANCELLATION CHARGES. Logan Clutch reserves the right to begin production of orders immediately unless specifically requested otherwise. Cancellation will involve cancellation charges for engineering and production work performed up to receipt of written cancellation provided by Purchaser to Logan Clutch. Purchaser agrees to pay these charges as a condition of sale.

D. VENUE (GOVERNING LAW) / RESOLUTION OF DISPUTES. The laws of the state of Ohio shall govern this agreement, the construction of its terms, and the interpretation of all rights and duties of Purchaser and Logan Clutch. Purchaser and Logan Clutch agree that they are amenable to suit in Ohio, and therefore, subject themselves to the jurisdiction of the state courts in Ohio by entering into this agreement.

II. SHIPMENT AND DELIVERY

Shipping dates represent Logan Clutch's best estimate and are approximate. Failure to meet these dates shall not constitute default by Logan Clutch nor shall Logan Clutch be liable for any failure to perform by reason of causes beyond its control. These causes include, but are not limited to, storms, floods, fires, accidents, wars, shortages of fuel, materials, transportation facilities, labor disputes and shortages, legislative action, judicial action and acts of God. In the event of any delay caused by such contingency, the date of delivery shall, at the request of the Logan Clutch, be deferred for a period equal to the time of loss by reason of the delay. In the event Logan Clutch's production is curtailed for any of the above reasons so that Logan Clutch cannot deliver the full amount released hereunder, Logan Clutch may allocate production deliveries upon various customers then under contract for similar goods. The allocation will be made in a commercially fair and reasonable manner. When allocation has been made Purchaser will be notified of the estimated quota made available.

III. PRICE QUOTES, TOTAL PRICE, PAYMENT, TITLE, INTEREST, COLLECTION COSTS AND FEES

A. PRICE QUOTES. The goods that are the subject matter of this contract and the quantity of goods to be delivered by Logan Clutch and received by Purchaser under this contract are all described in detail on page one (1) of the acknowledgment form, which is incorporated into this contract by reference. Price quotations on goods scheduled or forecasted for delivery beyond twelve (12) months from the date of the quotation are not binding upon Logan Clutch. All orders including those received on the basis of a quotation are subject to acceptance and acknowledgment by Logan Clutch. Prices quoted and acknowledged do not include federal, state or local taxes as applicable and these taxes will be added to the sales price when Logan Clutch is legally obligated to collect the taxes unless Purchaser provides Logan Clutch with a proper tax exemption certificate. All prices quoted and acknowledged are subject to correction for stenographic, typographic and clerical errors.

B. TOTAL PRICE & PAYMENT. The price for the goods that are the subject matter of this contract is set forth on page one (1) of the acknowledgment form, which is incorporated into this contract by reference. The terms of payment are net thirty (30) days from the date of invoice. Logan Clutch extends credit purely at its discretion and prorata payments from Purchaser are due as shipments are made. Logan Clutch ships all goods ex works and risk of loss passes to Purchaser upon delivery by Logan Clutch to a common carrier for shipment to Purchaser. Each shipment made shall be treated as a separate transaction. In the event of default by Purchaser, then Logan Clutch's decision to make further shipments shall not in any way affect its rights and remedies under law and shall not constitute a waiver of default by Logan Clutch. If in Logan Clutch's judgment, Purchaser's financial condition does not justify the terms of payment specified, Logan Clutch may at its option (1) cancel this contract, or (2) refuse to perform further under this contract unless Purchaser shall immediately pay for all goods which have been delivered. Goods returned for credit without Logan Clutch's written permission will not be accepted. Claims against Logan Clutch for shortages must be made in writing within 10 days after receipt of shipment.

C. TITLE, INTEREST, COLLECTION COSTS & FEES. Purchaser agrees to pay a delinquency charge of 1½% per month (18% per annum) on any outstanding balances owed by Purchaser and not paid after sixty (60) days from invoice date until Purchaser renders payment in full. If Logan Clutch must pursue legal action against Purchaser to collect any amounts owed by Purchaser to Logan Clutch, Purchaser agrees to pay Logan Clutch's expenses, including reasonable attorneys' fees, incurred as a result of the legal action. Until

Purchaser pays Logan Clutch the purchase price and all other sums due in full, Logan Clutch retains title to all goods shipped by Logan Clutch to Purchaser. Logan Clutch may, at its discretion, seek additional security from Purchaser on any amount due to Logan Clutch for goods shipped from Logan Clutch to Purchaser and thus Logan Clutch may retain a security interest in the goods and in all proceeds of the goods. Purchaser shall execute a financing statement(s) on request and irrevocably authorize Logan Clutch to execute and file same.

IV. WARRANTY

LIMITED WARRANTY. THE FOLLOWING WARRANTY FROM LOGAN CLUTCH IS EXPRESSED IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF LOGAN CLUTCH. LOGAN CLUTCH NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE GOODS OF LOGAN CLUTCH. LOGAN CLUTCH WARRANTS THAT THE GOODS DESCRIBED IN THIS WARRANTY ARE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF 365 CALENDAR DAYS OR 2080 SHIFT HOURS AFTER INSTALLATION OR 18-MONTHS AFTER SHIPMENT, WHICHEVER IS APPLICABLE OR OCCURS FIRST. PURCHASER'S REMEDY IS SUBJECT TO AN INSPECTION AND DETERMINATION BY LOGAN CLUTCH AT LOGAN CLUTCH'S PLANT, THAT ANY ALLEGED DEFECT, MALFUNCTION OR OTHER FAILURE OF A LOGAN CLUTCH GOOD IS NOT THE RESULT OF MISUSE, IMPROPER APPLICATION OR INSTALLATION, TORSIONAL VIBRATION, VIBRATORY TORQUE, SYSTEM FAILURE, ABUSE, OR DAMAGE OCCURRING AFTER THE GOOD HAS LEFT THE CUSTODY OF LOGAN CLUTCH, ALL OF WHICH VOID THIS WARRANTY.

IMPORTANT: WARRANTIES ARE VOID ON ALL APPLICATIONS WHICH EXCEED LOGAN CLUTCH CATALOG SPECIFICATIONS FOR NEW APPLICATIONS. LOGAN CLUTCH ACCEPTS NO RESPONSIBILITY AND EXTENDS NO WARRANTY UNLESS IT HAS APPROVED THE APPLICATION IN ADVANCE. IF PURCHASER SEEKS REJECTION OF GOODS DELIVERED FOR NONCONFORMITY WITH THIS CONTRACT AND/OR PACKING LIST DISCREPANCIES, PURCHASER MUST SEND WRITTEN NOTIFICATION TO LOGAN CLUTCH OF THE REJECTION OF THE GOODS WITHIN FIVE (5) DAYS AFTER DELIVERY OF THE GOODS TO THE PURCHASER. THIS NOTIFICATION SHALL STATE THE BASIS OF THE ALLEGED NONCONFORMITY AND A DESCRIPTION OF THE PORTION OF THE SHIPMENT REJECTED. FAILURE OF THE PURCHASER TO SEND WRITTEN NOTIFICATION TO LOGAN CLUTCH WITHIN FIVE (5) DAYS AFTER DELIVERY SHALL BE DEEMED CONCLUSIVE EVIDENCE THAT NO NONCONFORMITIES OR PACKING LIST DISCREPANCIES EXISTED AT THE TIME OF THE DELIVERY TO PURCHASER.

V. EXERCISE OF WARRANTY RIGHTS

In order to obtain performance of any obligation under this Warranty the following conditions must be met:

- The goods must be returned for inspection to Logan Clutch's plant within seven (7) days after failure. (Packaging of the returned goods shall conform to the same methods employed by Logan Clutch in shipping to Purchaser. Logan Clutch will not allow credit for returned goods damaged beyond the original defects, which damage was occasioned by carelessness of the customer or third parties, or improper packaging for return.)
- A complete written report containing the following information must accompany any request for adjustment:
 - Logan Clutch make, model and serial number
 - nature of defect;
 - installation date;
 - removal date;
 - plans illustrating installation and application;
 - specifications for part in intended application; and
 - electronic data log or event log.
- Logan Clutch has to determine that the goods are defective in either material or workmanship. If Logan Clutch inspects the goods and they are defective, Logan Clutch will replace or repair them without charge.

VI. LIABILITY LIMITATION; DISCLAIMER OF WARRANTY OF PATENT NON-INFRINGEMENT

Pursuant to Ohio Revised Code Sections 1302.29 and 1302.93 Logan Clutch's liability for Purchaser's damages is limited in the event of a breach or repudiation of this contract or of any of the provisions by Logan Clutch. PURCHASER SHALL NOT BE ENTITLED TO RECOVER INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING THOSE ARISING OUT OF OR UPON THE RIGHTS RAISED OUT OF A CLAIMED BREACH OF WARRANTY, BREACH OF IMPLIED WARRANTY OF MERCHANTABILITY, WARRANTY FOR A PARTICULAR PURPOSE OR USE, OR ANY LOSSES, COSTS, EXPENSES, LIABILITIES AND DAMAGES (INCLUDING, BUT NOT LIMITED TO, LOSS OF USE OR PROFITS, DAMAGES TO PROPERTY, ALL LIABILITIES OF PURCHASER TO

ITS CUSTOMERS OR THIRD PERSONS, AND ALL OTHER SPECIAL OR CONSEQUENTIAL DAMAGES) WHETHER DIRECT OR INDIRECT, AND WHETHER RESULTING FROM, OR CONTRIBUTED TO BY THE DEFAULT OR NEGLIGENCE OF LOGAN CLUTCH, ITS AGENTS, EMPLOYEES, OR SUBCONTRACTORS, WHICH MIGHT BE CLAIMED AS THE RESULT OF THE USE, MISUSE OR FAILURE OF THE GOODS DELIVERED. Additionally, Purchaser shall not be entitled to recover any costs for materials expended or used, initiated at the request of Purchaser. Logan Clutch's liability on its warranty shall in no event exceed its cost of correcting the defects in the equipment sold or replacing the same with non-defective parts.

LOGAN CLUTCH EXPRESSLY DISCLAIMS ANY WARRANTIES OF NON-INFRINGEMENT OF ITS GOODS UPON THE INTELLECTUAL PROPERTY RIGHTS OF ANY PARTY, INCLUDING WITHOUT LIMITATION WARRANTIES OF NON-INFRINGEMENT OF THE PATENTS, TRADEMARKS, COPYRIGHTS, SHOP RIGHTS, OR MORAL RIGHTS OF ANY THIRD PARTY.

VII. INDEMNIFICATION

Purchaser agrees to indemnify and hold harmless Logan Clutch from and against all claims for bodily injury, illness, death or property damage, liabilities, damages, losses and expenses, including attorney fees, arising: (1) from the use or misuse of the goods by a customer or any other party; or (2) out of the performance of this contract. Purchaser further indemnifies and holds Logan Clutch harmless from and against all claims of infringement of the intellectual property rights, including without limitation the patent rights, trademarks, copyrights, shop rights, or moral rights, of any third party.

VIII. INTELLECTUAL PROPERTY RIGHTS

LOGAN CLUTCH SHALL RETAIN ALL INTELLECTUAL PROPERTY RIGHTS TO THE GOODS THAT ARE THE SUBJECT MATTER OF THIS AGREEMENT. LOGAN CLUTCH'S INTELLECTUAL PROPERTY RIGHTS INCLUDE, BUT ARE NOT LIMITED TO PATENT, TRADEMARK, TRADE NAME, AND COPYRIGHT PROTECTION RIGHTS. SPECIFICALLY, LOGAN CLUTCH RETAINS THE RIGHT TO FILE FOR PATENT PROTECTION UNDER 35 U.S.C. §1, ET SEQ. FOR THE GOODS WHICH ARE THE SUBJECT MATTER OF THIS AGREEMENT. LOGAN CLUTCH AND PURCHASER SHALL JOINTLY POSSESS ALL INTELLECTUAL PROPERTY RIGHTS FOR ANY GOODS MANUFACTURED BY PURCHASER THAT INCORPORATES THE GOODS PURCHASED FROM LOGAN CLUTCH.

IX. CONFIDENTIALITY

PURCHASER SHALL CONSIDER THE GOODS THAT ARE THE SUBJECT OF THIS AGREEMENT AND ALL SPECIFICATIONS, DRAWINGS, PROTOTYPE ARTICLES AND INFORMATION FURNISHED BY LOGAN CLUTCH OR PREPARED BY LOGAN CLUTCH FOR PURCHASER IN CONNECTION WITH THIS AGREEMENT CONFIDENTIAL. PURCHASER SHALL NOT DISCLOSE THIS INFORMATION TO ANY OTHER PERSON OR USE THE INFORMATION ITSELF FOR ANY PURPOSE OTHER THAN PERFORMING UNDER THIS AGREEMENT, UNLESS PURCHASER OBTAINS LOGAN CLUTCH'S WRITTEN PERMISSION TO DO SO. PURCHASER SHALL NOT DISCLOSE ANY INFORMATION RELATING TO THIS AGREEMENT WITHOUT LOGAN CLUTCH'S WRITTEN PERMISSION.

X. STATUTE OF LIMITATIONS

Pursuant to Ohio Revised Code Section 1302.98 the parties agree that an action for breach of this agreement, or any other cause of action arising from this agreement, must be commenced if at all within one year from when the cause of action accrued.

XI. EFFECT OF CONTRACT

A. CONTRACT BINDING. This contract shall be binding on and inure to the benefit of the parties and their respective heirs, executors, administrators, legal representatives, successors, and assigns when permitted by this contract.

B. LEGAL CONSTRUCTION. In case any one or more of the provisions contained in this contract are held to be invalid, illegal, or unenforceable in any respect, the invalidity, illegality, or unenforceability shall not affect any other provision and this contract shall be construed as if the invalid, illegal, or unenforceable provision had never been contained in it.

SELLER:

LOGAN CLUTCH CORPORATION

 **Logan Clutch Corporation®**
manufacturers of clutches and brake products

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