INSTALLATION AND REMOVAL INSTRUCTIONS

Pltts Electro-Magnetic Clutch

The following Instructions are for Pitts clutch (2 piece) stationary mounted coil with belt driven pulley assembly.

I. **Stationary Mounted Coil:** (Outboard 4-hole or inboard 3-hole Mount)

A. Be sure that rated D.C. voltage of coil Is same as D.C. voltage from supply source.
B. Attach coil to mounting surface using "special" 1/4"-20 hex head screws in parts package supplied with clutch.
C. Torque 1/4"-20 supplied screws to 13-17 Ib.-ft. (consult with manufacturer if other screws are used.)
Note: Coil must be concentric to shaft on driven device within 0.015 T.I.R. (Total Indicator Runout). Coil face clearance. to pulley cavity face must be 3/32 Inch.

II. Pulley Assembly: (Tapered or Straight Bore Hub)

A. Throughly clean the shaft of driven unit.
B. Check shaft key for proper size and location in shaft keyway.
C. Slide pulley assembly onto shaft. Be sure that clutch hub keyway aligns with shaft key and that shaft key Is properly seated and located after pulley installation.
D. Secure pulley assembly in proper location on shaft using 5/16 Nylock capscrew and flat washer supplied in parts package or by using other suitable attachments. (Recommended torque for 5/16 inch supplied capscrew is 20 ft-Ibs.)
E. Hand spin the pulley and watch for any excessive runout or rubbing interference with the coil or mounting bracket areas. Correct any such problems prior to operation of clutch assembly.

III. Electrical Connection: (1 or 2 Lead Wire Coils)

A. Connect coil lead wire to D.C. electrical circuit.
Note: If coil has only one lead wire, the coil is internally grounded through the mounting hardware. If the coil has two lead wires. one wire is to be connected to D.C. electrical circuit and the other to an external grounding point.
B. Apply rated D.C. voltage to the coil to engage the clutch. Engage and disengage several times. The disc should "snap" firmly against the pulley face during engagement. If not, check D.C. voltage circuit and correct as required.

IV. Removal:

A. Remove shaft bolt or other attaching devices from pulley.
B. Taper Bore Hub - Install 5/8 Inch NC (coarse thread) bolt In-to corresponding threads In front of hub. Turn bolt against shaft and pulley will be forced free.
   Straight Bore Hub -The pulley may slide freely off shaft by hand applied force. If not, use a suitable pulley puller tool.

V. Operation of Clutch:

A. When clutch Is ready for functional operation and with drive belts properly installed, start the driving power source (engine, motor, etc.)
B. Observe that all mounting hardware is secured and drive belts are in line and turning properly.
C. Apply rated D.C. voltage to the coil to engage clutch. Repeatedly engage and disengage the clutch approximately 15-20 times. This procedure will "burnish in" the mating friction surfaces and allow the clutch to yield higher Initial torque.

VI. Performance Assurance:

The performance of a Pitts electro-magnetic clutch depends upon the proper application of the product, adequate run-In, Installation and maintenance procedures, and reasonable care in operation of the unit. All torque values listed In our literature are nominal and are subject to the variations normally associated with friction devices. Adequate and reasonable service factors must be applied when selecting units. Although Pitts application engineers are available for consultation, final selection and performance assurance on the buyer's application is the responsibility of the purchaser. The buyer should take into consideration all variables shown In the applicable specification sheet. Careful selection, adequate testing, and proper operation and maintenance of all Pltts products should aid in obtaining the best possible performance.

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HOW TO AVOID CLUTCH PROBLEMS

What are typical application problems that cause clutch failures? Clutch slippage is the most common complaint, but it's not always readily obvious why the clutch slips. Low voltage and erratic torque demands are probably the most troublesome. Unfortunately, these can both be present at the same time.

When a clutch is removed from the application and set aside for examination, many of the clues to the cause of failure are lost. The best way to analyze a clutch failure is before the clutch is removed from the application as this will often reveal the true cause of failure. Nevertheless, we have experienced enough failure modes over the years to establish a pattern of these "failed clutches".

Two things happen in these cases. (1) The clutch torque decreases due to application problems, or (2) the application load increases. A normal clutch has more than the required torque capacity to drive an approved application under high load conditions. A normal clutch is one operating with full rated voltage on an approved application, for example a pump, or compressor, in a fairly clean environment. The normal pump does not purge oil onto the clutch face or operate over the manufacturer's rated pressures. Now, these severe conditions can become more severe. The voltage source can decrease, the ambient temperature increase, etc. Even then, it is unlikely that a clutch would slip because of the built in safety factor.

We find that a combination of severe conditions may be superimposed. Consider the following: Low voltage -a loss of 1 volt on a 12
volt unit will drop torque 9%, 2 volts may cause partial engagement and drag. High ambient temperature - a 50°F increase in temperature may drop torque 10%. A new clutch, before being cycled-in, has 113 less torque than after it is cycled.

More unusual causes, but nevertheless serious are these: (1) Poor grounding of the clutch coil: (2) Oil from a pump or hose leak can reduce the friction drastically: (3) Severe contamination can destroy bearings and cause high friction heat and slippage: (4) Bearing failures can also be caused from excessive belt tension and misalignment or from brinnelling upon forced installation to the shaft.

Many coil failures are really a result of extensive clutch slippage transfering heat to the coil face thus burning the potting compound and coil winding. If the coil ins not mounted concentric to the shaft,

interference will result in failure. When a shaft locks up, the clutch os forced to slip. This cause of failure is hard to analyze except by the technician who replaces both assemblies. A service report with the clutch can help in analyzing the conditions.

TROUBLESHOOTING

Some tips that will help the technician diagnose or prevent problems:

1. One tool we recommend be available, and used regularly, is a good D.C. volt-ohmmeter. Check the clutch voltage at the coil wire connection when the system is operating and all other lights and accessories operating. The clutch coil must be supplied with required rated voltage. Equally as important is grounding of the clutch coil. Check this circuit as well, to assure full complete grounding.
2. When installing a clutch, be sure it seats on the shaft and key. Use a torque wrench to properly torque the field coil and shaft bolts as specified.
3. Belt tension. Drive belts that are too loose or too tight can cause a variety of problems. Use a belt tension gage to set or adjust belt tension.
4. Cycle a new clutch as much as practical after installation (1000-1500 RPM-5 sec on/5 sec off -25 cycles). This increases the torque greatly.
5. The cause of rubbing of the pulley on the coil is often loose coil screws. Elongated holes, broken coil tabs, etc., may be the result of loose screws. These must be torqued as specified.

REVIEW OF POTENTIAL PROBLEMS

- Low voltage to coil.
- Inadequate coil grounding.
- Compressor seal leak.
- Clutch mounted incorrectly.
- Mounting bolts not torqued.
- Malfunction of other system components.
- Excessive engine vibration.
- Excessive ambient temperature.
- Belt tension-to high/low.

In conclusion, please remember that things are not always as they first appear and just because a failure has occurred does not always justify blaminf the part that failed.

DATE	SYM	REVISION RECORD	DCN
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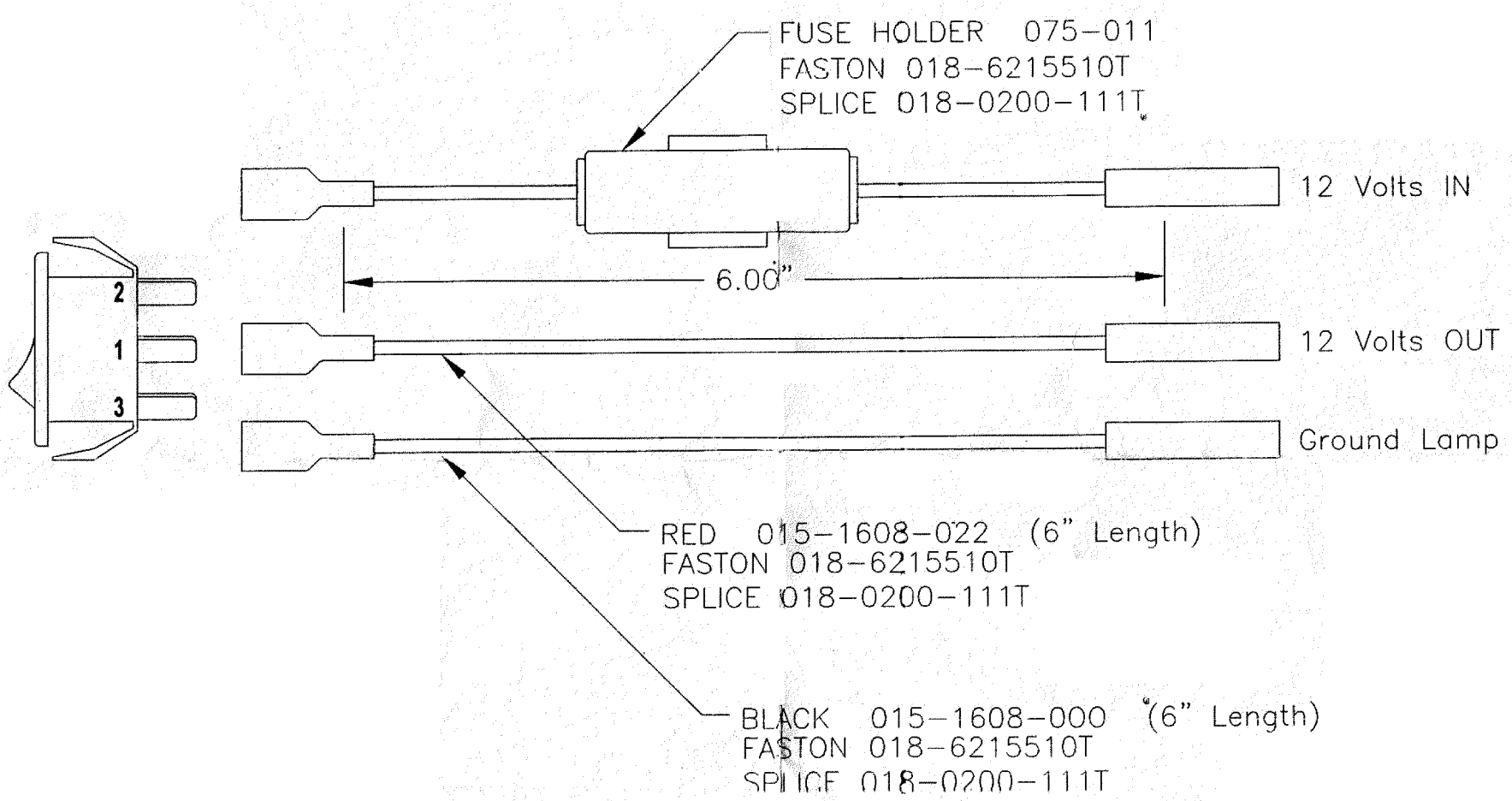
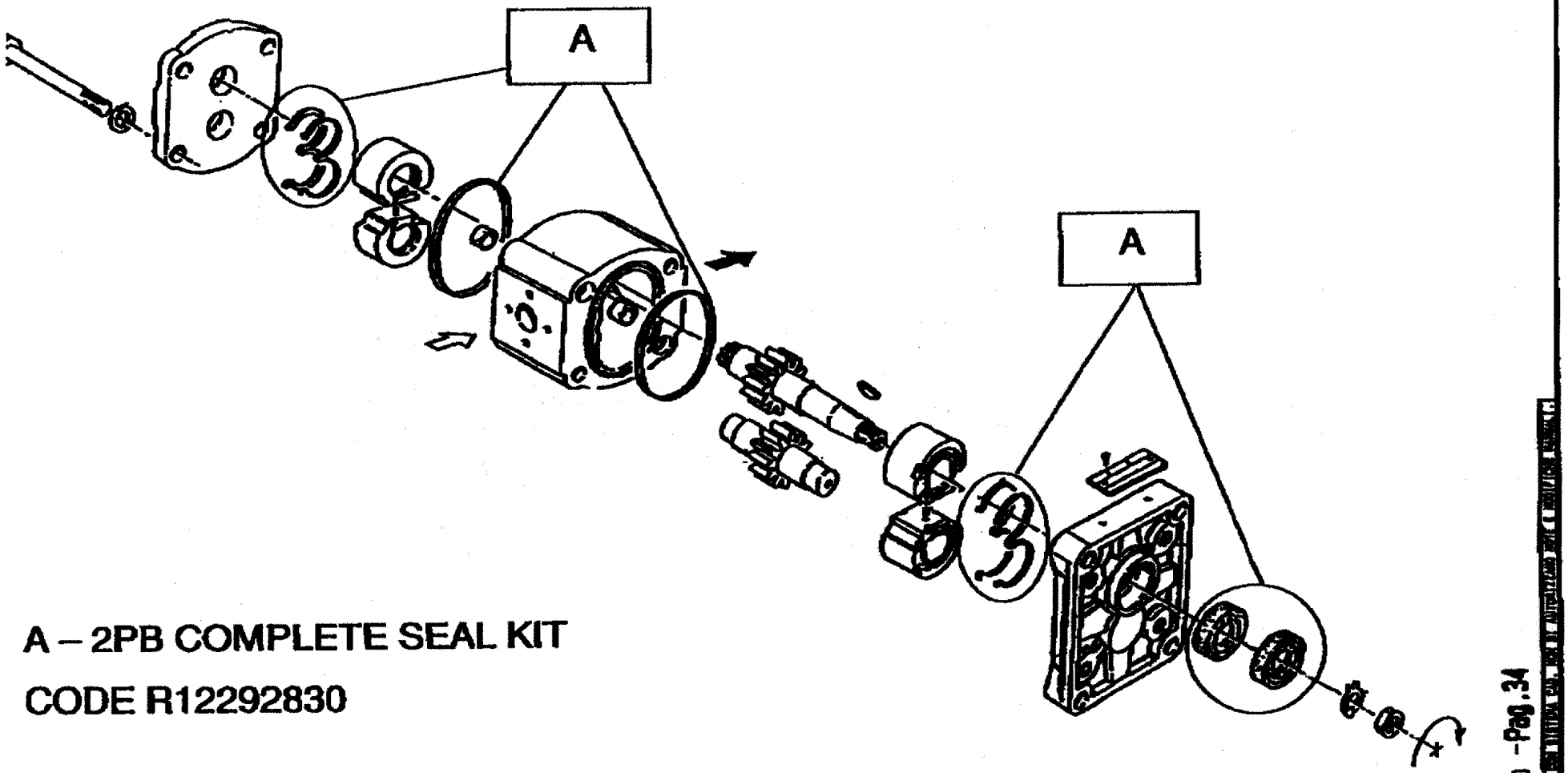
02/07/05	B	SPLICE WAS 017-029	A699



TOLERANCES EXCEPT WHERE NOTED
DECIMAL ± .010
± .03
FRACTIONAL ± 1/32
ANGULAR ± 1°

DATA PANEL CORP.

CUSTOMER: XXX
MATL: SEE NOTE
FINISH: SEE NOTE
SIZE: A
SCALE: 1=1
DRAWN BY: KG
APP. BY:
TITLE: WIRE HARNESS
DATE: 10/15/04
DRAWING NUMBER: 24085-400
REV.: B



A – 2PB COMPLETE SEAL KIT

CODE R12292830

2PB Pump -Pag.34

2 PB Pump
Complete Seal Kit

Codice PART NO. 412292830s

salami