

# PARTS & SERVICE NEWS

REF NO.	AA01140
DATE	June 20, 2001

**SUBJECT:** SERVICING AIR CONDITIONER COMPRESSOR COMPONENTS ON THE TRUCK

**PURPOSE:** Inform the field that servicing certain components on Alma A-6 compressors is now possible.

**APPLICATION:** Komatsu Electric Drive Dump Trucks:  
 445E: AFE39-A & up, AFE41-A & up;  
 510E: AFE40-A & up, AFE44-A & up;  
 630E: AFE42-A & up, AFE46-A & up;  
 685E: AFE43-A & up;  
 730E: AFE47-A & up, A30079 & up;  
 830E: AFE32-A & up, AFE50-A & up, A30544 & up;  
 930E: AFE48-A & up, A30019, A30026 & up;  
 Komatsu Mechanical Drive Dump Trucks:  
 530M: AFP49-A and up;  
 HD1500-5LC: A30039 and up;  
**that are equipped with A/C compressors PB9069, PB9288, or PC0454.**

**FAILURE CODE:** 874FZ9

**DESCRIPTION:** This procedure provides information on how to service A/C compressor components without having to remove or replace the compressor and recover and recharge refrigerant.

Serviceable compressor clutch parts are now available for Alma A-6 air conditioning compressors. The addition of these parts to the parts book allows the compressor to be serviced when a compressor clutch failure occurs. Upon clutch failure, the compressor may not need to be replaced as in the past. The clutch may be serviced with the compressor still mounted on the machine and the refrigerant lines still connected. This is an advantage that may save time and expense.

**NOTE:** *Some compressors may be discarded because it is suspected that internal components within the compressor have seized. Ensure that the compressor clutch is working properly before discarding a compressor for internal seizure. The normal compressor life span should be about twice as long as the normal life span of the compressor clutch.*

## ⚠ IMPORTANT ⚠

*The clamping diode in the compressor clutch circuit may cause shortened life of clutch components. Refer to Parts and Service News "AIR CONDITIONING COMPRESSOR CLUTCH DIODE" (AA01070) for information on how to lengthen the life span of compressor components*

### CLUTCH REMOVAL PROCEDURE

<b>* RECOMMENDED TOOLS FOR COMPRESSOR CLUTCH REMOVAL AND INSTALLATION</b>	
J-9399	Thin Wall Socket
**J-9403	Spanner Wrench
**J-25030	Clutch Hub Holding Tool
J-9401	Clutch Plate and Hub Assembly Remover
J-8433	Pulley Puller
J-9395	Puller Pilot
***J-24092	Puller Legs
J-8092	Universal Handle
J-9481	Pulley and Bearing Installer
J-9480-01	Drive Plate Installer
J-9480-02	Spacer, Drive Plate Installer

\*Tools are available through your local Kent-Moore dealer.

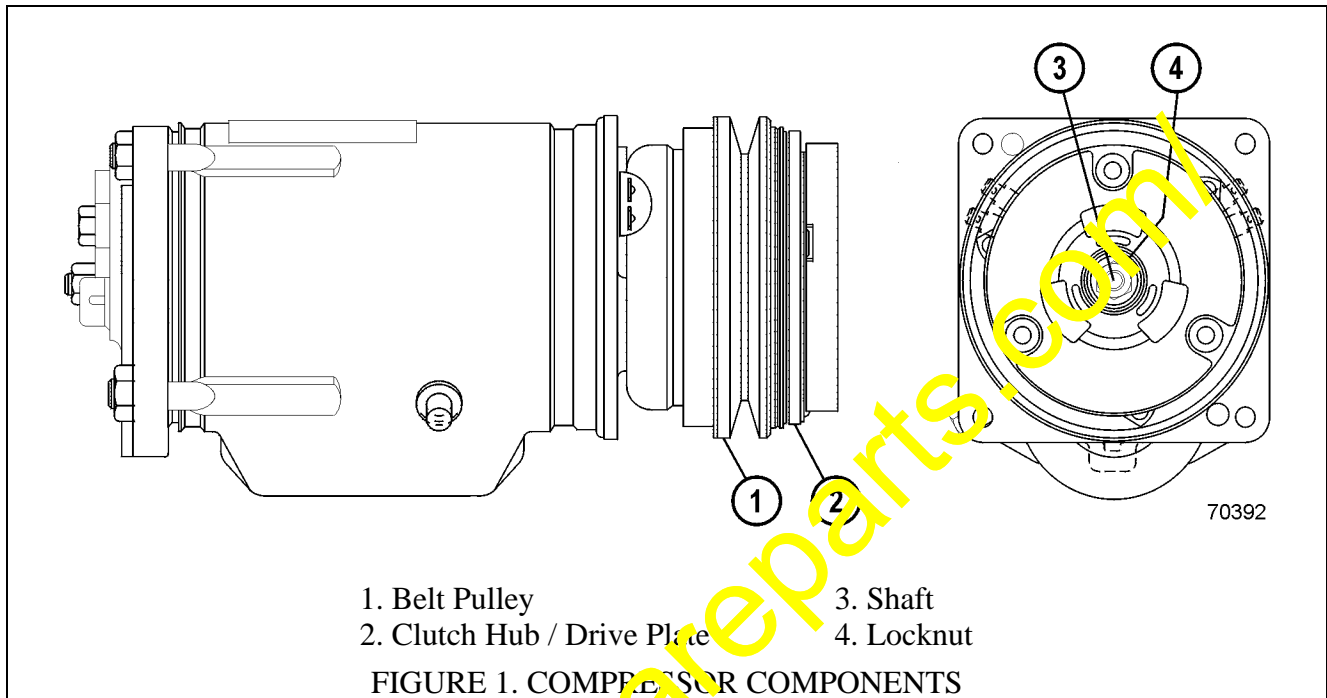
\*\* These tools are interchangeable.

\*\*\*For use on multiple groove pulleys.

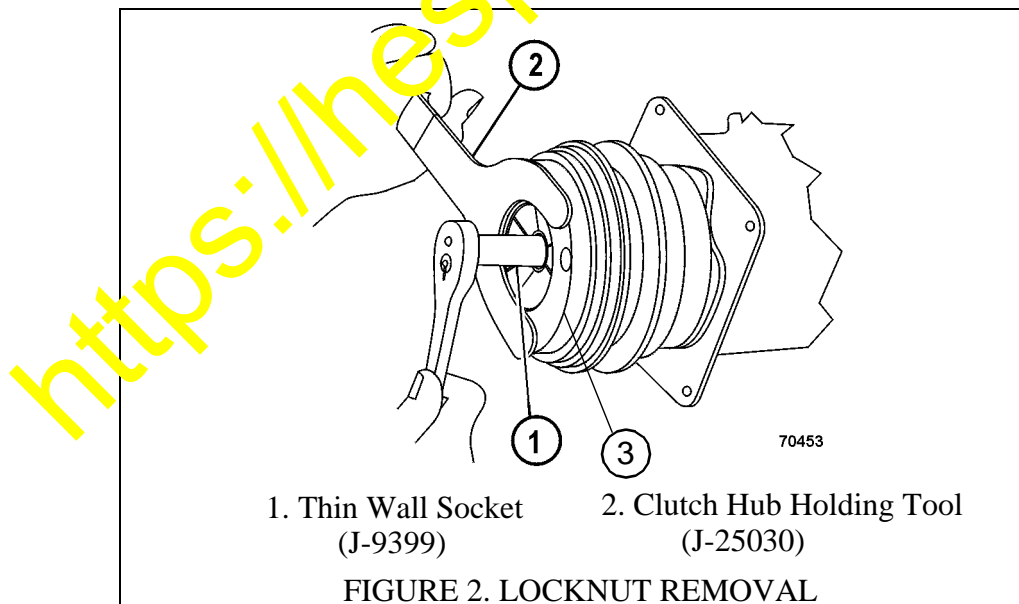


*Use the proper tools to remove and replace clutch components. Using the recommended tooling helps prevent damage to compressor components during maintenance.  
Do not drive or pound on the clutch plate, hub assembly, or shaft. Internal damage to the compressor may result.*

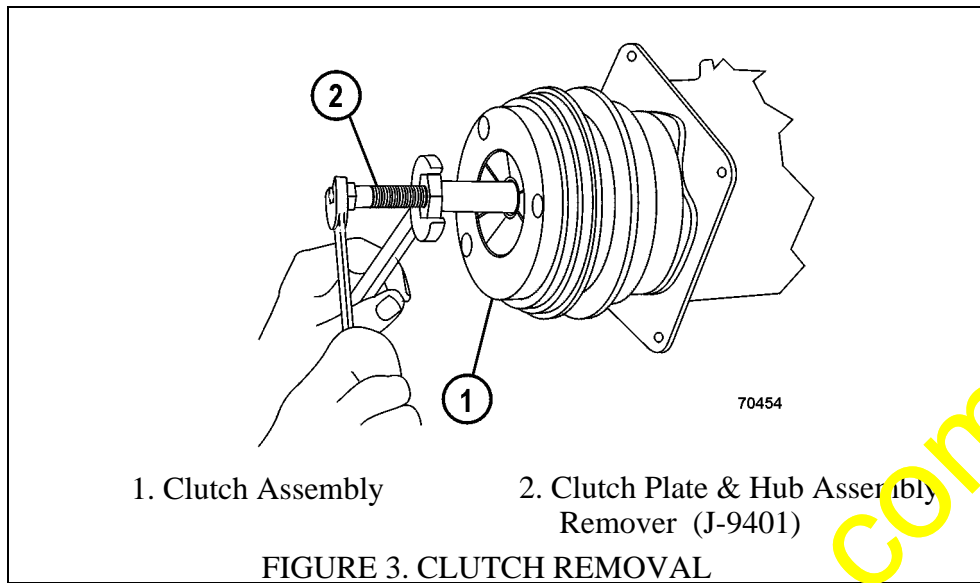
1. Remove the belt guard from the front of the air conditioning compressor.



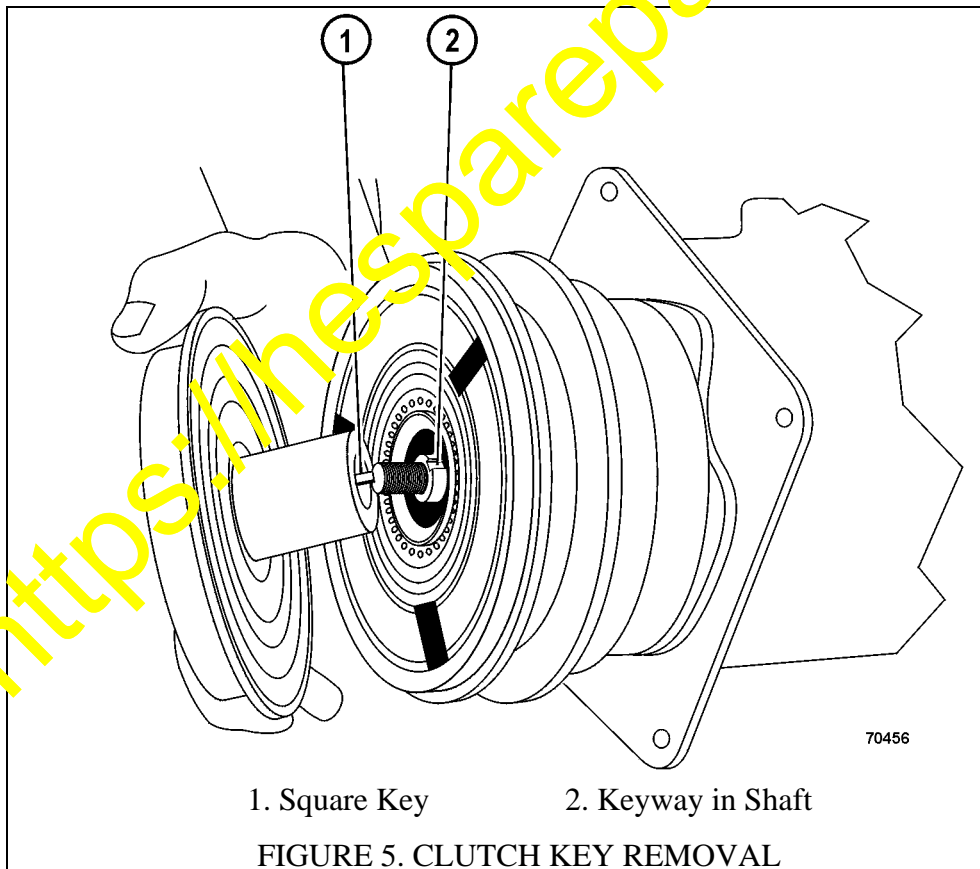
2. Remove the drive belt from compressor belt pulley (1, Figure 1).



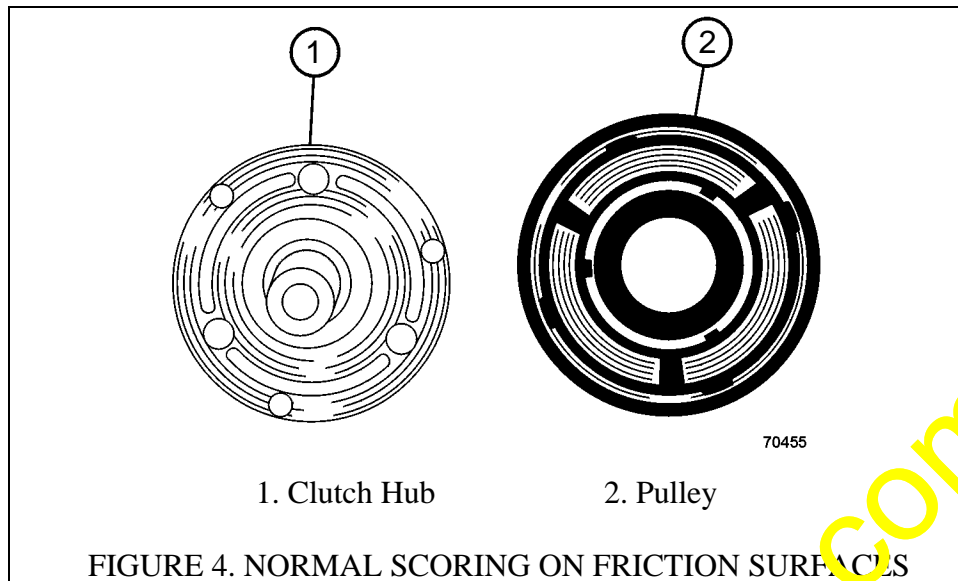
3. Remove locknut (4) using thin wall socket (1, Figure 2) or the equivalent. Use clutch hub holding tool (2), spanner wrench (J-9403), or the equivalent to hold clutch plate (3) while removing the locknut. It is recommended that the locknut be replaced after it has been removed.



4. Thread clutch plate and hub assembly remover (2, Figure 3) into the hub of clutch assembly (1). Hold the body of the remover with a wrench and tighten the center screw to pull the clutch plate and hub assembly from the compressor.



5. Remove square key (1, Figure 5) from the keyways.

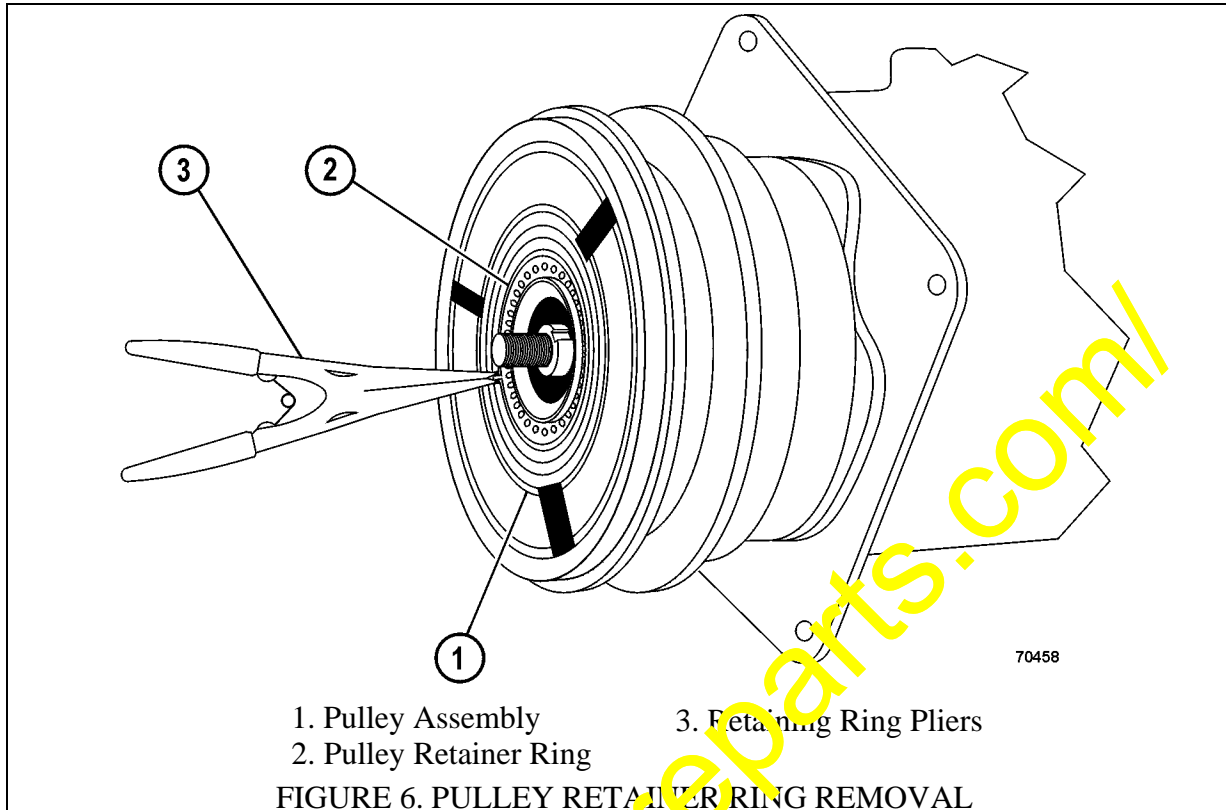


6. Inspect the friction surface on the clutch hub and the friction surface on the pulley. Scoring on the friction surfaces is normal. DO NOT replace these components for this condition only.

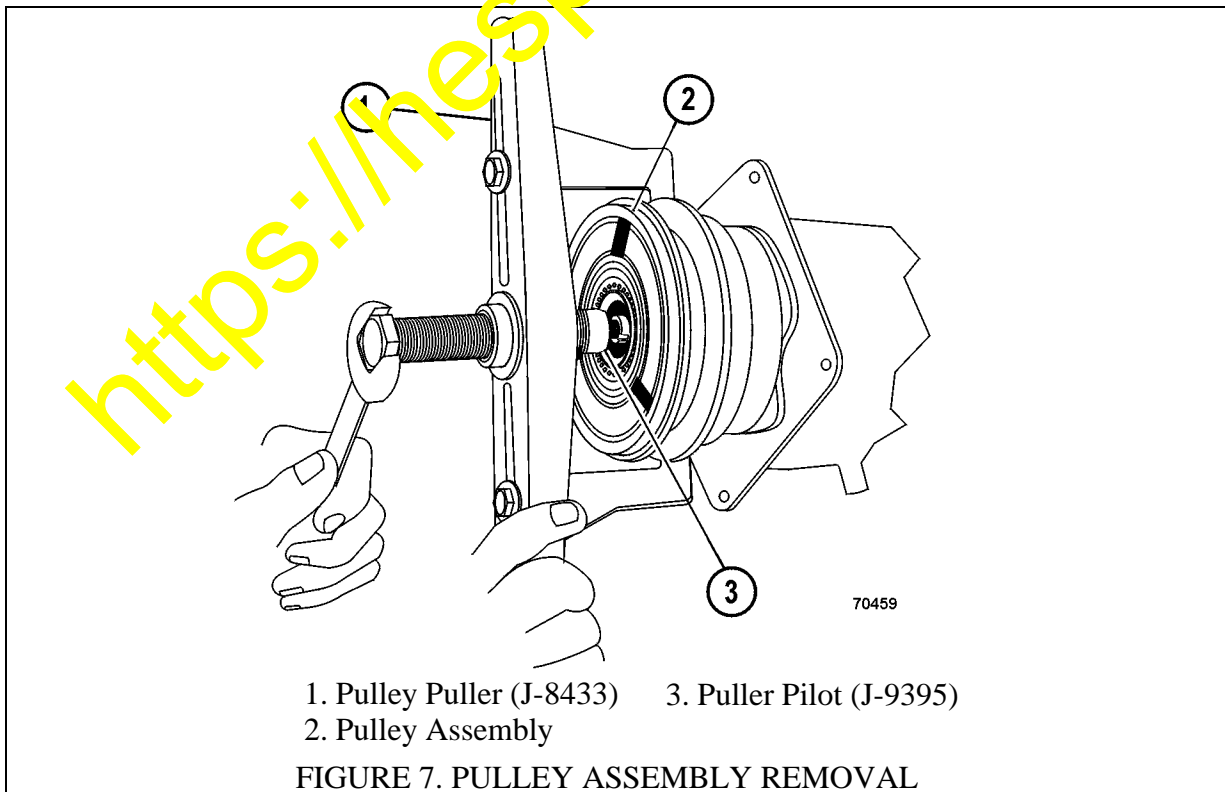
**▲ IMPORTANT ▲**

*Inspect the steel friction surface on the clutch and ensure that it is not damaged by excessive heat. Inspect the other components near the clutch for damage due to heat. If signs of excessive heat are evident, it may be necessary to replace the compressor. Excessive heat may cause leakage in the seals and damage to internal components as well as external components.*

## PULLEY REMOVAL



7. Use retaining ring pliers (3, Figure 6) to remove pulley retainer ring (2) from pulley (1).
8. Pry the absorbent sleeve retainer from the neck of the compressor, and remove the sleeve.



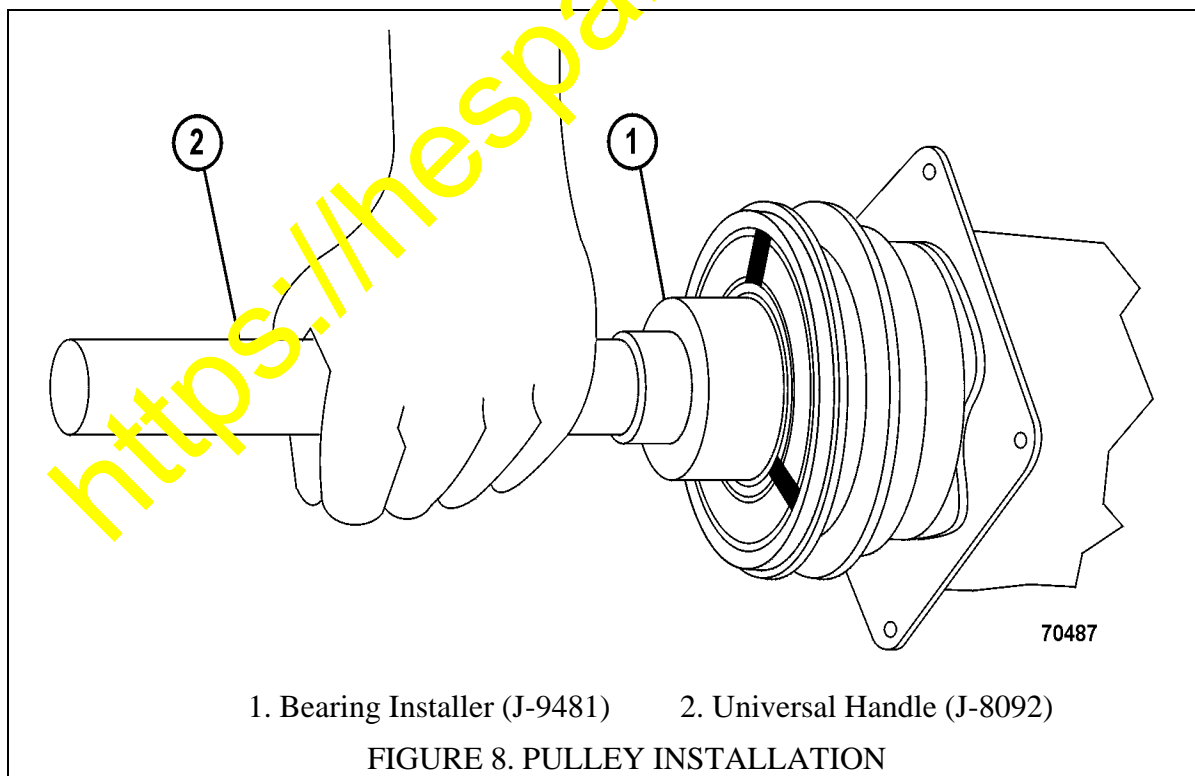
9. Install pulley puller (1, Figure 7) and puller pilot (3) onto the compressor, as shown. If a multiple groove pulley is used, install puller legs (J-24092) onto the puller in place of the standard legs. Extend the puller legs to the back side of the pulley. DO NOT use the belt grooves to pull the pulley from the compressor.
10. Tighten the center screw on the puller against the shaft of the compressor to remove the pulley.
11. Clean the pulley and pulley bearing with solvent. Inspect the assembly for damage. Check the bearing for brinneling, excessive looseness, noise, and lubricant leakage. Replace the assembly if any of these warning signs are evident.

## CLUTCH COIL CHECK

12. Use a multi-meter to ohm check the clutch coil. The resistance should be as follows:
  - @ 68° F (20° C)  $12 \pm 0.37$  ohms
  - @ 239° F (115° C)  $16.1 \pm 0.62$  ohms

If the resistance of the coil is not within the specifications, the clutch will not operate properly. Remove the retaining ring and replace the coil.

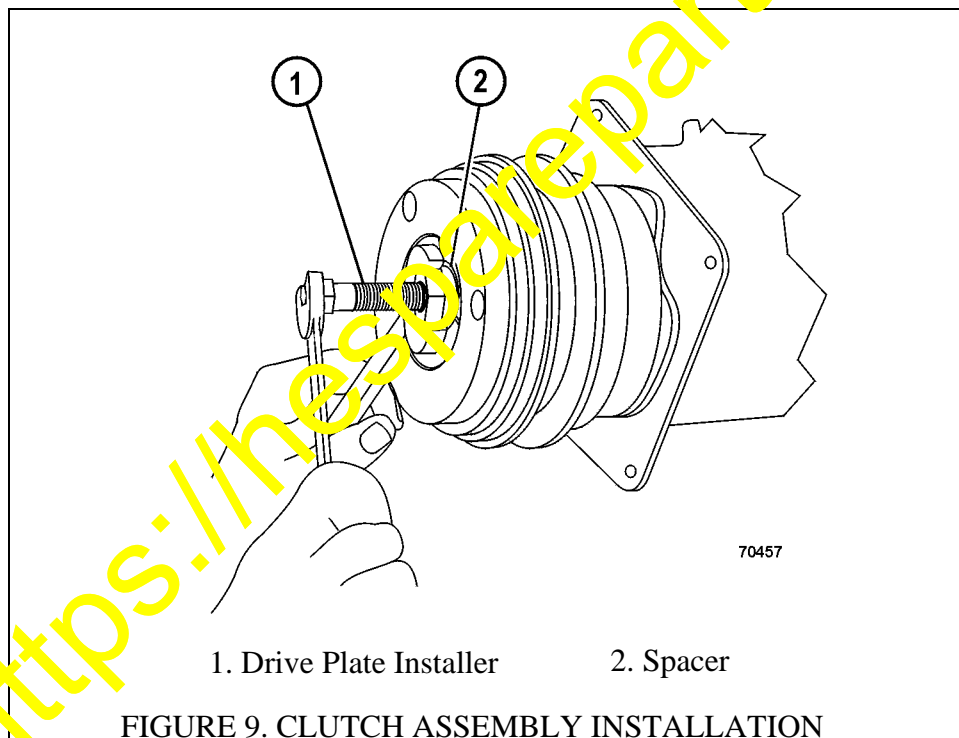
## PULLEY INSTALLATION



1. Place the pulley assembly into position on the compressor. Use bearing installer (1, Figure 8), universal handle (2), and a hammer to lightly tap the pulley assembly onto the compressor until it seats. Use of the installer or the equivalent ensures that the force driving the bearing into position acts on the inner race of the bearing. Applying force to the outer race of the bearing will result in bearing damage.
2. Ensure that the pulley rotates freely. If the pulley does not rotate freely, remove the pulley and check for damaged components. Replace any damaged components and reinstall the pulley.
3. Install the pulley retainer ring and ensure that the ring is properly seated.
4. Install the absorbent sleeve into the neck of the compressor. Install the sleeve retainer.

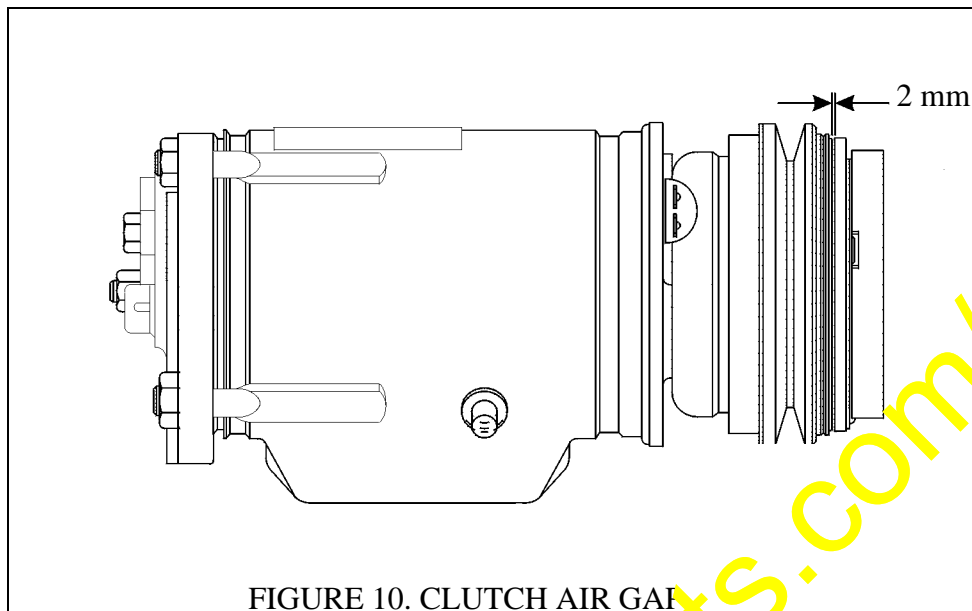
## CLUTCH ASSEMBLY INSTALLATION

5. Insert square key (1, Figure 5) into the keyway in the clutch hub. Allow the key to protrude about 4.5 mm (0.18 in.) from the outer edge of the hub. Use petroleum jelly to hold the key in place.



6. Place the clutch assembly into position on the compressor. Align the square key with the keyway on the shaft.
7. Thread drive plate installer (1, Figure 9) onto the shaft of the compressor. Spacer (2) should be in place under the hex nut on the tool.





8. Press the clutch onto the compressor using installer (1). Continue to press the clutch plate until a 2 mm (0.079 in.) gap remains between the clutch friction surface and the pulley friction surface. Refer to Figure 10.

**NOTE:** The outer threads of installer (J-9480-01) are left handed threads.

9. Install locknut (4, Figure 1) and tighten the nut until it seats. The gap should now measure  $1.02 \pm 0.043$  mm ( $0.040 \pm 0.017$  in.). If the gap is not within the specification, check for proper installation of the square key.
10. Install the drive belt onto the compressor. Ensure that the proper tension on the belt is attained. Refer to the belt tension chart in the appropriate engine manual for the proper specifications.
11. After assembly is complete, burr the mating parts of the clutch by operating the air conditioning system at maximum load conditions with the engine at high idle. Turn the air conditioning control "ON" and "OFF" at least 15 times for one second intervals.
12. Install the belt guard if no further servicing is required.