Section

4001

ELECTRICAL SCHEMATIC AND TROUBLESHOOTING

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SECTION INDEX - POWER TRAIN

Section Title

Section Number

How It Works 6000

Removal and Installation of Power Train Components 6001

Transmission Specifications and Troubleshooting 6002

Drive Axle 6004

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TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS 5

TORQUE SPECIFICATIONS - DECIMAL HARDWARE

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts, and Studs



Size	Pound-Inches	Newton metres
1/4 inch	108 to 132	12 to 15
5/16 inch	204 to 252	23 to 28
3/8 inch	420 to 504	48 to 57
Size	**Pound-Feet**	**Newton metres**
7/16 inch	54 to 64	73 to 87
1/2 inch	80 to 96	109 to 130
9/16 inch	110 to 132	149 to 179
5/8 inch	150 to 180	203 to 244
3/4 inch	270 to 324	366 to 439
7/8 inch	400 to 480	542 to 651
1.0 inch	580 to 696	787 to 944
1-1/8 inch	800 to 880	1085 to 1193
1-1/4 inch	1120 to 1240	1519 to 1681
1-3/8 inch	1460 to 1680	1980 to 2278
1-1/2 inch	1940 to 2200	2631 to 2983

Grade 8 Bolts, Nuts, and Studs



Size	Pound-Inches	Newton metres
1/4 inch	144 to 180	16 to 20
5/16 inch	288 to 348	33 to 39
3/8 inch	540 to 648	61 to 73
Size	**Pound-Feet**	**Newton metres**
7/16 inch	70 to 84	95 to 114
1/2 inch	110 to 132	149 to 179
9/16 inch	160 to 192	217 to 260
5/8 inch	220 to 264	298 to 358
3/4 inch	380 to 456	515 to 618
7/8 inch	600 to 720	814 to 976
1.0 inch	900 to 1080	1220 to 1465
1-1/8 inch	1280 to 1440	1736 to 1953
1-1/4 inch	1820 to 2000	2468 to 2712
1-3/8 inch	2380 to 2720	3227 to 3688
1-1/2 inch	3160 to 3560	4285 to 4827

NOTE: *Use thick nuts with Grade 8 bolts.*

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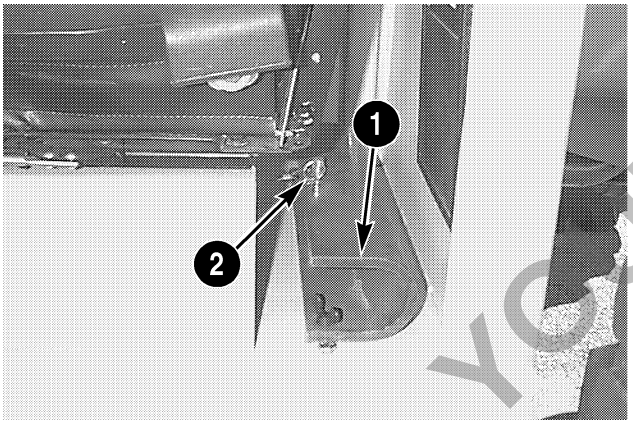
ENGINE AND TRANSMISSION REMOVAL

The engine can be removed separately from the transmission. However, due to space limitations, it is easier to remove the engine and transmission as an assembly; and that is the method described in this manual. Refer to Section 6, TRANSMISSION, for the procedure to remove the transmission separately.

Preparation

WARNING: *The boom can crush. Never perform maintenance or service operations under the boom while it is in the raised position without blocking the boom to prevent it from falling.* M690

Boom Stop Stowed

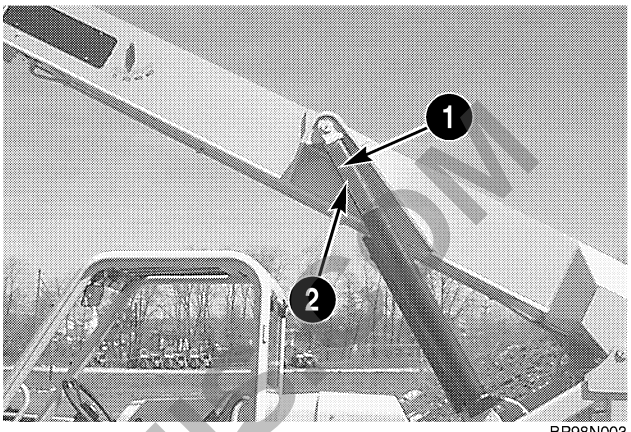


BP98N002

1. BOOM STOP 2. PIN

1. Remove the boom stop from its stowed position on the cab floor behind the operator's seat.

Boom Stop Installed



BP98N003

1. BOOM STOP 2. PIN

NOTE: *Use care not to damage the highly polished surface on the hydraulic cylinder rod when installing the boom stop. Scratches and gouges on the rod surface may damage the cylinder seals.*

1. Raise the boom high enough to place the boom stop (1) on the cylinder rod. Place the boom stop (1) onto the cylinder rod and install pin (2) to secure the boom stop (1) on the cylinder rod.
2. Slowly lower the boom until it rests against the boom stop (1).

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TROUBLESHOOTING, ENGINE

PROBLEM	POSSIBLE CAUSE
Engine will not start and the starter does not rotate	Fuse is defective Batteries discharged Battery cable connections loose or disconnected In-line line fuse to starter fused Faulty starter relay Ignition switch defective Starter solenoid or starter defective
Engine will not start and the starter does rotate	Empty fuel tank Air in fuel system Clogged fuel filter Fuel solenoid at fuel pump defective Intake air system restricted Contaminated fuel
Engine difficult to start and has poor and irregular performance	Low battery power Batteries discharged Battery cable connections are loose or corroded causing the starter to turn too slowly Oil viscosity too high for cold (winter) conditions Fuel line blockage due to wax separation in winter Incorrect valve clearance Defective fuel injectors Defective turbocharger Air cleaner element restricted Loose or badly adjusted throttle cable
Engine making excessive fumes	Lugging engine Air in fuel system Engine oil level too high Air cleaner/filter plugged Low compression due to poor condition of the valves or incorrect valve clearance Injection pump timing incorrect Air leak between turbocharger and intake/exhaust manifold Multiple seal washers under injector nozzle Injector nozzle malfunction Faulty turbocharger Engine running too cold Injection pump overfueled

Continued on next page

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Engine

Type	4-390	4T-390
Horsepower		
Gross	80	110
Net	72	99

Oil
Capacity ..... 11 litres (11.6 U.S. quarts) with filter use Case No. 1 15W-40 API CG-4 or CF-4

NOTE: *Specifications listed with engine at normal operating temperature.*

Normal operating temperature	82 - 99°C (180 - 210°F)
Low idle speed	900 - 1000 rpm
High Idle speed	2750 rpm

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Section

1001

STANDARD TORQUE SPECIFICATIONS

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3. Place the upper half of the engine mount (12) and transmission mounting bushings (7) in the frame.
4. Place washers (3) on cap screws (2), apply Locite 271, and place a cap screw in each transmission mounting bracket (4).
5. Place washer (18) on cap screw (17), apply Loctite 271 and install the cap screw in engine mounting plate (13).
6. Be sure lifting hooks and sling are secure and carefully raise the engine transmission assembly into position over the frame. Lower the assembly into the frame while aligning cap screws (2) and (17) with the transmission mount bushing (7) and the engine shock mount (12) in the frame.
7. Place the lower half of engine shock mount (12) onto cap screw (17) install washer (10) and nut (11). Tighten nut (11) to 570 Nm (420 lb-ft).
8. Place lower halves of transmission mounting bushings (7) onto cap screws (2), install washers (8) and nuts (9). Tighten nuts (9) to 814 Nm (600 lb-ft).
9. Disconnect lifting hooks and straps from the assembly.
10. Connect drive shafts (front and rear) to the transmission.
11. Connect exhaust pipe.
12. Connect throttle linkage and install fan shroud.

NOTE: *Add a small amount of hydraulic oil through the inlet port of the hydraulic pump before connecting the hydraulic hoses.*

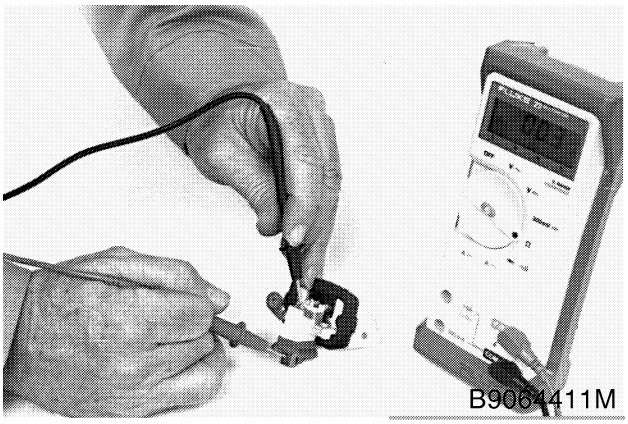
13. Connect all wiring connectors and connect the hydraulic hoses to the hydraulic pump.
14. Connect the fuel line to the fuel pump.
15. Refer to the Operators Manual for capacities, procedures and recommended fluids and fill engine coolant, hydraulic fluid reservoir, and engine oil as required.
16. Start the engine and raise the boom enough to remove boom stop.
17. Remove the boom stop and stow the boom stop on the cab floor behind the operator's seat.

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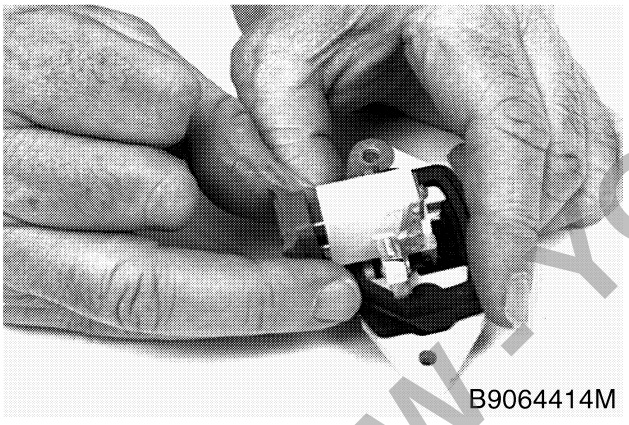
INSPECTION OF BRUSHES

STEP 21



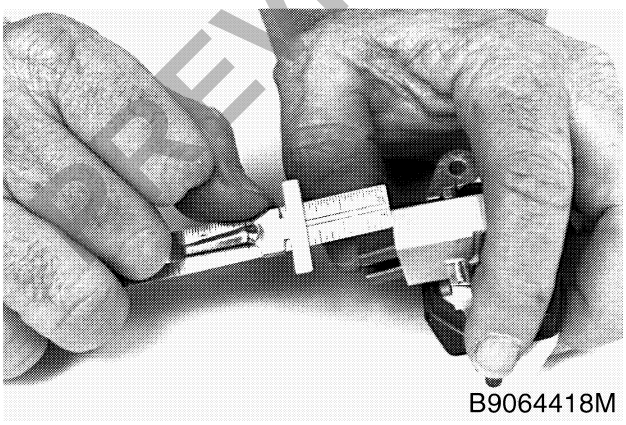
Use an ohmmeter and check the continuity from each terminal and brush. If the reading is zero, replace the brush or voltage regulator and brush holder.

STEP 22



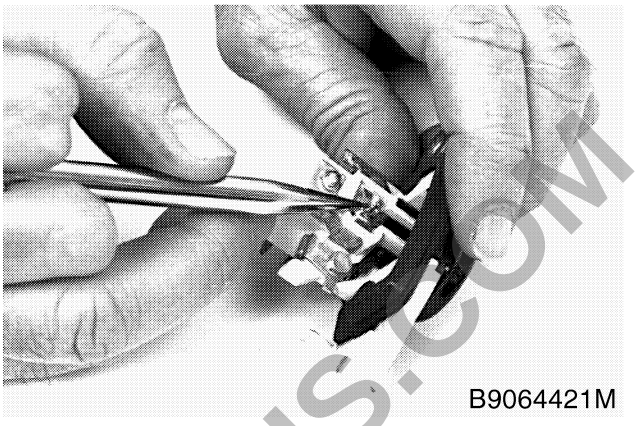
Remove the shield.

STEP 23



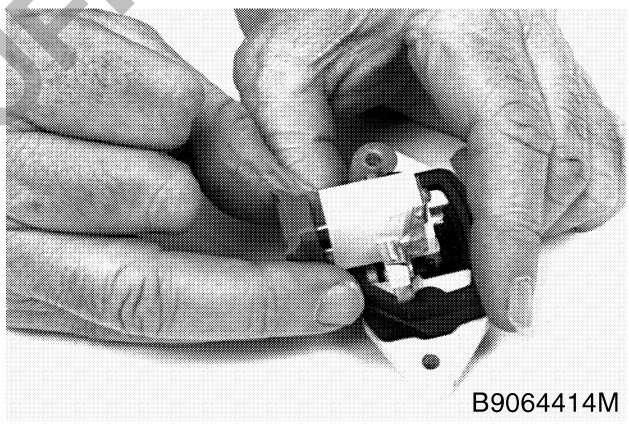
Measure the length of each brush. If the length of one brush is less than 0.55 inch (14 mm) replace both brushes or the voltage regulator and brush holder.

STEP 24



To replace the brushes, use a soldering iron to remove the original brushes. Install the springs and new brushes and use rosin core solder to solder the leads to the terminals. Before soldering the terminal shown, open the sleeve for the brush lead and then crimp the sleeve.

STEP 25



Install the shield.

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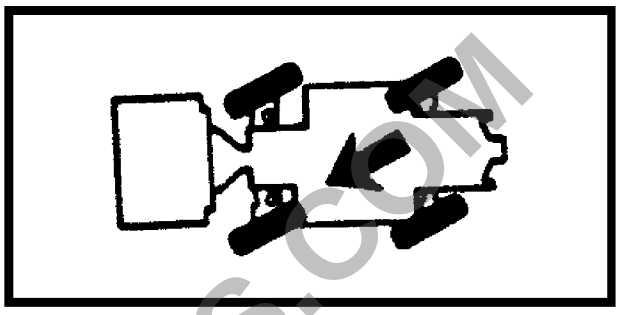
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STEERING SYSTEM

STEERING SELECTOR VALVE

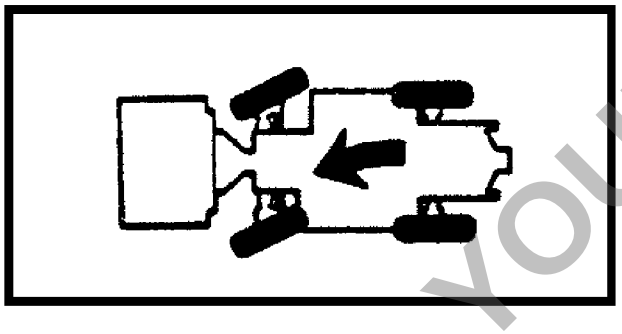
The steering selector valve (1) is an electrically controlled switching valve. The steering selector valve is used to select front wheel, 4-wheel (coordinated) or crab steering.

With front wheel steering selected, the steering selector valve is in the center (neutral) position connecting the front steering cylinder to the hydraulic system. When 4-wheel (coordinated) steering is selected, the solenoid positions the spool in the steering selector valve to allow hydraulic fluid to the rear steering cylinders. When crab steering is selected, the solenoid positions the selector valve to the opposite position to directly connect the rear steering cylinder.



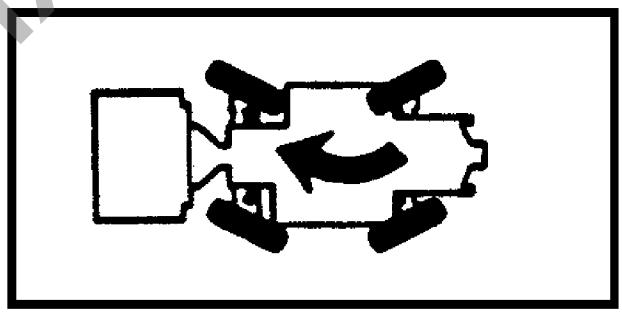
BS98N076

Steering Modes
(Crab Steering)



BS98N075

Steering Modes
(Front Wheel Steering)



BS98N077

Steering Modes
(Coordinated Steering)

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Section

7000

BRAKE SYSTEM

HOW IT WORKS

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TROUBLESHOOTING, HYDRAULIC SYSTEM

PROBLEM	POSSIBLE CAUSE
Slow or no movement of the cylinders	Low oil level in tank Air in hydraulic system Load is greater than capacity Relief valve set too low Pump inlet hose had an air leak Pump is defective Cylinder seal defective Motion control valve defective Hose or tube has restriction Defect in control valve
Movement of cylinder is not smooth	Air in the hydraulic system Defect in self-aligning bearing Damage to rod or shell Defect in relief valve Defect in flow control valve
Air in the system	Low oil level in tank Leak in inlet hose to pump Leak in seal on pump shaft air entered on disassembly
Carriage tilts forward too fast	Motion control valve defective Flow control valve defective
Boom lowers when engine is not running	Motion control valve defective Boom cylinder seals defective
No Boom Lift/Slow Boom Lift	Hydraulic oil level low Inlet filter has a restriction System pressure check is faulty System relief check valves Faulty priority valve Bad pump Faulty cylinder Contamination Pilot and drain manifold has restriction Faulty control valve Mechanical obstruction
No Boom Extend/Slow Boom Extend	Hydraulic oil level low Inlet filter has a restriction System pressure check is faulty System pressure check valves Faulty priority valve Bad pump Faulty cylinder Contamination Pilot and Drain manifold has restriction Faulty control valve Mechanical obstruction

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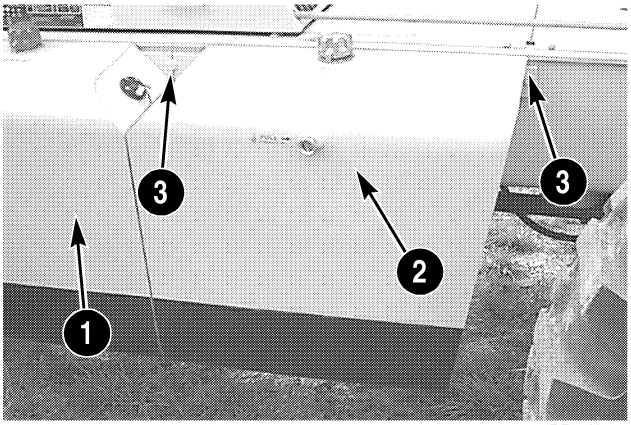
NOTES

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HYDRAULIC AND FUEL TANKS

The fuel and hydraulic tanks (1 and 2) are located on the right side of the frame. Each tank is secured to the frame by means of two mounting brackets, which are welded to the back of the tanks, and cap screws (3) with flat washers.



BP98N013

1. FUEL TANK
2. HYDRAULIC TANK
3. CAP SCREWS

Hydraulic and Fuel Tanks

Fuel Tank Removal

WARNING: *Fuel is flammable. May cause severe injury or death.*

Stop the engine, extinguish all open flames and do not smoke when working near fuel.

Always wipe up any spilled fuel. M697

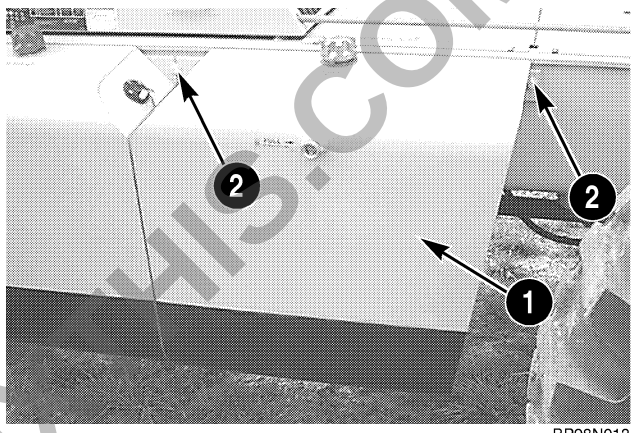
1. Remove the drain plug from the bottom of the fuel tank (1) and drain fuel into a suitable container. If fuel is contaminated, dispose of it in an environmentally safe manner according to local guidelines.
2. Disconnect the fuel line and cap off to prevent contaminates from entering the fuel system.

CAUTION: *Use acceptable lift/support equipment to lift fuel tank. Equipment must be capable of lifting the empty tank. Approximate dry weight of the fuel tank is 38 kg (85 lbs).*

3. Remove the cap screw and flat washer (3) from each side of the fuel tank and lift the tank from the brackets on the frame.

Hydraulic Tank Removal

1. Remove the drain plug from the bottom of hydraulic tank (1) and drain hydraulic oil into a suitable container. Dispose of used hydraulic oil in an environmentally safe manner according to local guidelines.



BP98N013

1. HYDRAULIC TANK
2. CAP SCREWS AND FLAT WASHERS

Hydraulic Tank Drain Plug

2. Clean the area around the hydraulic connections thoroughly. Disconnect the hydraulic lines and cap off to prevent contaminants from entering the hydraulic system.

CAUTION: *Use acceptable lift/support equipment to lift the hydraulic tank. The dry weight of the hydraulic tank is 58 kg (128 lbs).*

3. Remove the cap screws and flat washers (2) from each side of the hydraulic tank and lift the tank from the brackets on the frame.

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CHAIN ADJUSTMENTS

NOTE: *Adjust the extend chains at the rear of the intermediate boom if there is no clearance between the front chain anchors and the load rollers.*

NOTE: *The retract chain is automatically adjusted when the extend chains are adjusted correctly.*

1. Move the boom to a horizontal position.
2. Fully extend the boom and then retract the boom 300-450 mm (12 -18 inches).
3. Measure the distance between the bottom of the intermediate boom and the chains at the front chain anchors (see page 9005-12). Then measure the distance between the bottom of the intermediate boom and the center of the extend chains. The measurements must be 32-41 mm (1.25-1.625 inches).
4. Adjust the nuts on the chain anchors that are at the front of the outer boom to adjust the extend chains. If the difference in the measurements is more than the specification, tighten the extend chains at the chain anchors. If the difference in the measurements is less than the specification, loosen the extend chains at the chain anchors.

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a

ITA Serrare in sequenza con il metodo incrociato, le nuove viti (3) di ritegno dei perni snodo inferiore e superiore.
Coppia di serraggio: 128÷142 Nm

D Entgegengesetzt und abwechselnd die Schrauben (3) der unteren und oberen Gelenkstiften festschrauben.
Anzugsmoment: 128÷142 Nm

ESP Apretar en secuencia con el método cruzado, los tornillos (3) de retención de las rótulas inferior y superior.
Par de torsión: 128÷142 Nm

F Serrer dans l'ordre, par le biais du mode croisé, les vis (3) de fixation des tourillons d'articulation inférieur et supérieur.
Couple de serrage: 128÷142 Nm

b

ITA Collegare il perno snodo (2) (Vedere «INSTALLAZIONE CILINDRO DI STERZATURA»).
Lubrificare gli snodi con Molikote e montare il coperchio parapolvere (1).

D Den Gelenkstift (2) anschließen (Siehe «GELENKZYLINDER INSTALLIEREN»).
Gelenke mit Molikote schmieren und den Schutzdekkel (1) abschrauben.

ESP Conectar la rótula (2) (Véase «INSTALACION CILINDRO DE DIRECCIÓN»).
Lubricar las rótulas con Molikote y montar la tapa de protección del polvo (1).

F Brancher le tourillon d'articulation (2) (Voir «INSTALLATION DU CYLINDRE DE BRAQUAGE»).
Lubrifier les articulations avec du Molikote, puis monter le couvercle anti-poussière (1).

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ITA **ATTENZIONE!** Se previsto, eliminare l'azione del freno negativo.
Applicare sui mozzi portaruota gli attrezzi **T12** e bloccarli.
Controllare con una livella **"B"** che gli attrezzi siano perfettamente in piano e paralleli tra loro.

D **ACHTUNG!** Wenn vorgesehen, Wirkung der Negativbremse beseitigen.
An den Radhalternaben die **T12** Werkzeuge anbringen und blockieren.
Mit einer Libelle **"B"** kontrollieren, ob die Werkzeuge livelliert und parallel liegen.

ESP **CUIDADO!** Si ha sido previsto, eliminar la acción el freno negativo
Aplicar en los cubos portarruedas las herramientas **T12** y bloquearlas.
Controlar utilizando un nivel **"B"** que las herramientas estén perfectamente niveladas y paralelas entre sí.

F **ATTENTION!** Si prévu, éliminer l'action du frein négatif.
Appliquer sur les moyeux des roues les outils **T12** puis bloquer.
Contrôler à l'aide d'un niveau **"B"** que les outils soient parfaitement à plat et parallèles entre-eux.

b

ITA Collegare il sensore (1) al dispositivo di controllo secondo uno dei due schemi.

D Sensor (1) mit der Kontrollvorrichtung nach einem der beiden Pläne verbinden.

ESP Conectar el sensor (1) al dispositivo de control según uno de los dos esquemas.

F Connecter le capteur (1) au dispositif de contrôle à l'aide de l'un des deux schémas.

c

ITA Scheda collegamento sensore versione STANDARD.

D Verbindungskarte für Sensor STANDARD Ausführung.

ESP Tarjeta de conexión sensor versión ESTÁNDAR.

F Carte de connexion du capteur version STANDARD.

d

ITA Scheda collegamento sensore versione OPZIONALE.

D Verbindungskarte für Sensor OPTION Ausführung.

ESP Tarjeta de conexión sensor versión OPCIONAL.

F Carte de connexion du capteur version OPTIONNEL.

e

ITA Eseguire la centratura spostando lentamente il pistone prima in un senso e poi nell'altro, posizionandolo a metà della corsa determinata dalle accensioni e dallo spegnimento in fase di ritorno, della lampada di segnalazione del dispositivo di controllo.

D Die Zentrierung vornehmen, dabei den Kolben zuerst leicht in die eine, dann in die andere Richtung drehen und auf halbem Hubweg positionieren. Dieser halber Weg liegt zwischen dem Ein- und Ausschalten der Kontrolleuchte der Kontrollvorrichtung.

ESP Ejecutar el centraje desplazando lentamente el pistón primero en un sentido y después en el otro, posicionándolo a mitad de la carrera determinada por el encendido y el apagado en fase de retorno, de la lámpara de señalización del dispositivo de control.

F Effectuer le centrage en déplaçant lentement le piston d'abord dans un sens, puis dans l'autre, en le plaçant à mi-course qui est déterminée par la lampe-témoin qui s'allume et qui s'éteint pendant la phase de retour et qui se trouve sur le dispositif de contrôle.

f

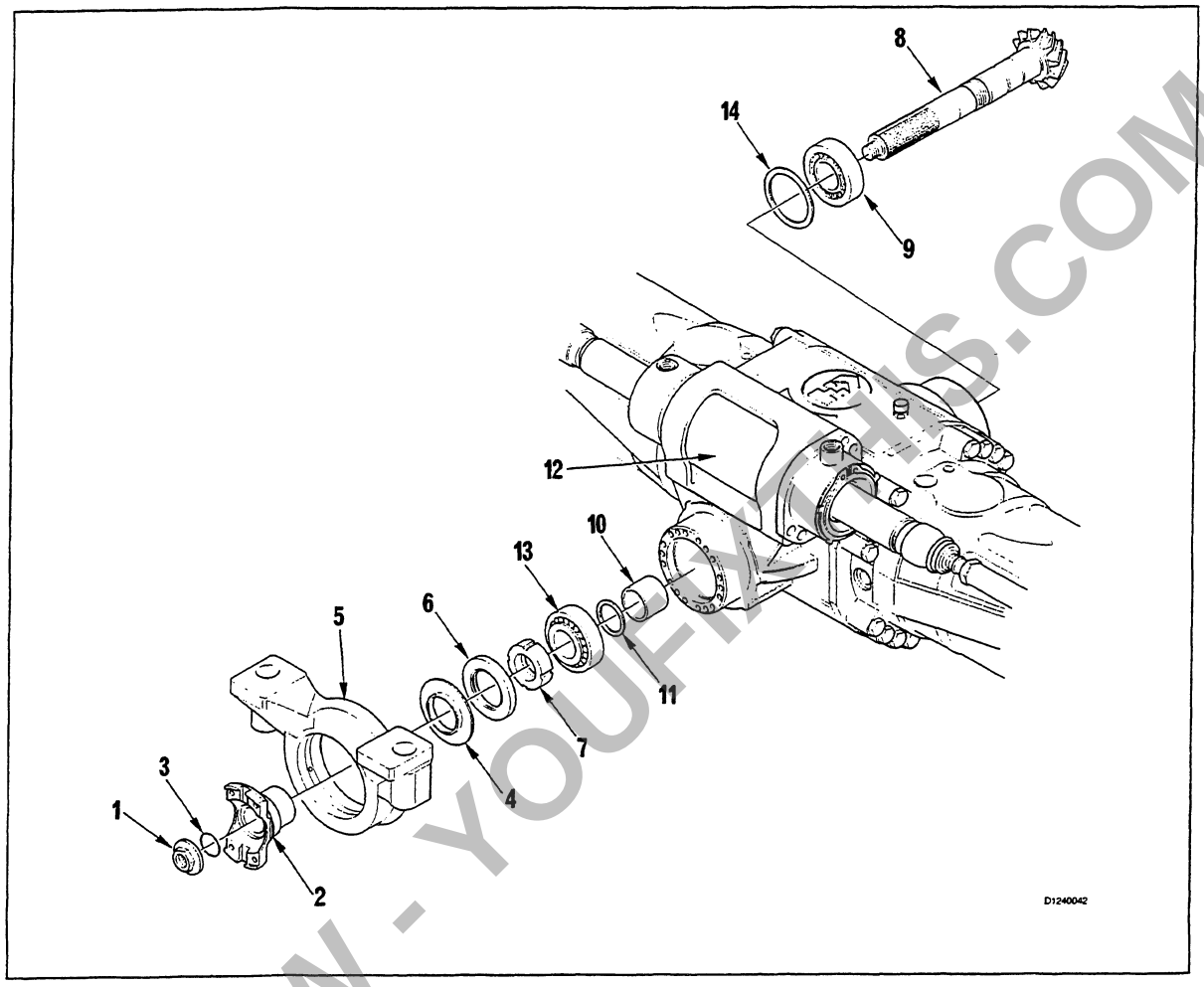
ITA Controllare la sporgenza **"C"** del pistone su un lato ed annotare la misura per il controllo delle regolazioni successive.
NOTA. Per i cilindri senza sensore, la centratura del pistone deve essere eseguita in base alla corsa massima.

D Den Vorsprung **"C"** des Kolbens an einer Seite kontrollieren und das Maß zur Kontrolle der nachfolgenden Einstellungen notieren.
BEMERKUNG. Für Zylinder ohne Sensor, erfolgt die Kolbenzentrierung aufgrund des maximalen Hubs.

ESP Controlar la parte saliente de **"C"** del pistón en un lado y anotar la medida para el control de las regulaciones sucesivas.
NOTA. Para los cilindros sin sensor, el centraje del pistón tiene que ser ejecutado de acuerdo con la carrera máxima.

F Contrôler la saillie **"C"** d'un côté du piston et prendre note de la mesure pour contrôler les régulations suivantes.
NOTE. Pour les cylindres sans capteur, le centrage du piston doit être effectué en se basant sur la course maximale.

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a

ITA **NOTA.** Lo smontaggio è uguale per i due bracci e può essere eseguito solo a leve (3) libere.
Scollegare dalla scatola snodo il tirante di sterzatura.
Per i dettagli, vedere «RIMOZIONE CILINDRO DI STERZATURA».

D **BEMERKUNG.** Beide Arme werden auf dieselbe Weise abmontiert; dies kann jedoch nur erfolgen, wenn die Hebel (3) frei sind.
Spannstange vom Gelenkgehäuse abtrennen.
Weitere Einzelheiten im Paragraph «LENKZYLINDER ABMONTIEREN».

ESP **NOTA** El desmontaje es ugual por los dos brazos y puede ser efectuado solo a palancas (3) libres.
Desconectar del carter de las rotulas el tirante de direccion.
Para los detalles, vease «REMOCION CILINDRO DE DIRECCION».

F **NOTE.** Le démontage est pareil pour les deux bras et ne peut être effectué que lorsque les leviers (3) sont libres.
Débrancher de la boîte articulation la tringle de braquage.
Pour tout détail, voir «DEPOSE CYLINDRE DE BRAQUAGE».

b

ITA Asportare la vite (1) di bloccaggio della rondella (2) di ritegno della leva (3).

D Die Schraube (1) zur Befestigung der Unterlegscheibe (2) des Hebels (3) abschrauben.

ESP Sacar el tornillo (1) de bloqueo de la arandela (2) de retencion palanca (3).

F Enlever la vis (1) de blocage de la rondelle (2) de fixation du levier (3).

c

ITA Rimuovere la rondella (2), la leva (3) e le guarnizioni OR (4).
Contrassegnare le posizioni delle leve (3) rispetto le leve di spinta (12) e (13).

D Unterlegscheibe (2), Hebel (3) und O-Ringe (4) abnehmen.
Die Positionen der Hebel (3) im Verhältnis zu den Druckhebeln (12) und (13) kennzeichnen.

ESP Remover la arandela (2), la palanca (3) y las guarniciones OR (4).
Senalar las posiciones de las palancas (3) respecto a las palancas de empuje (12)

F Enlever la rondelle (2), le levier (3) et les garnitures OR (4).
Marquer les positions des leviers (3) par rapport aux leviers (12) et (13).

d

ITA Asportare le viti (5) e rimuovere la boccola (6) completa di guarnizione OR (7).

D Schrauben (5) abschrauben und Buchse (6) samt O-Ring (7) abnehmen.

ESP Sacar los tornillos (5) y remover el casquillo (6) completo de guarniciones OR (7).

F Enlever les vis (5) et extraire la douille (6) équipée de garnitures OR (7).

e

ITA Agganciare il braccio completo (8) ad un mezzo di sollevamento e mettere il leggera tensione la fune.
Rimuovere il braccio completo; per i dettagli, vedere «CONTROLLO E SOSTITUZIONE DISCHI FRENI».

D Vollständigen Arm (8) mit einem Hebekarren anheben bis das Seil gespannt ist.
Vollständigen Arm abtrennen; weitere Einzelheiten im Paragraph «BREMSSCHEIBEN KONTROLLIEREN UND AUSWECHSELN».

ESP Enganchar el brazo completo (8) y un medio de levantamiento y poner en ligera tension el cable.
Remover el brazo completo; por los detalles, vease «CONTROL Y SUSTITUCION DISCOS FRENOS».

F Accrocher le bras complet (8) à un moyen de relevage et mettre la corde légèrement en tension.
Enlever le bras complet: pour tout détail, voir «CONTROLE ET SUBSTITUTION DES DISQUES FREINS».

f

ITA Rimuovere i dischi freni (9) ed il pistone completo (10).
Per i dettagli, vedere «CONTROLLO E SOSTITUZIONE DISCHI FRENI».

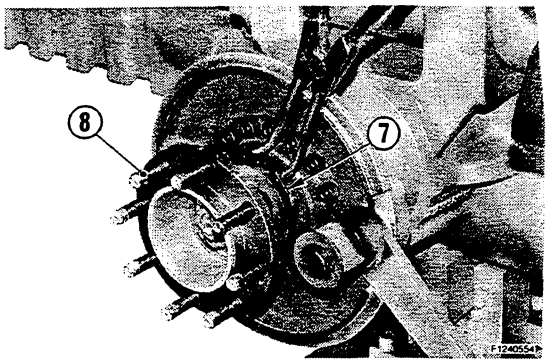
D Bremsscheiben (9) und den ganzen Kolben (10) abnehmen. Weitere Einzelheiten im Paragraph «BREMSSCHEIBEN KONTROLLIEREN UND AUSWECHSELN».

ESP Remover los discos frenos (9) y el piston completo (10).
Por los detalles, vease «CONTROL Y SUSTITUCION DISCOS FRENOS».

F Enlever les disques freins (9) et le piston complet (10).
Pour tout détail, voir «CONTROLE ET SUBSTITUTION DES DISQUES FREINS».

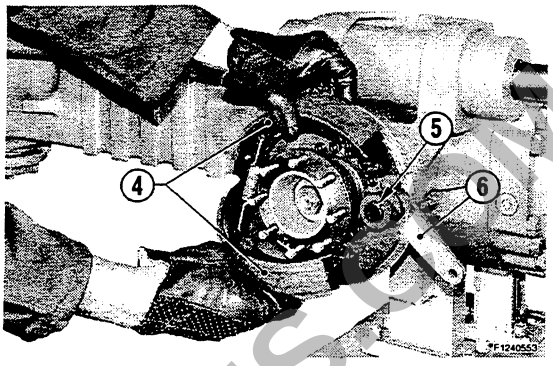
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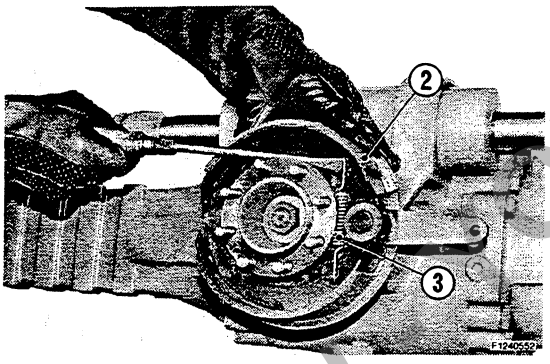
GB a

Insert the screws (8) and hold them in position with the snap ring (7).
NOTE. Make sure that the ring is properly set in its seat.



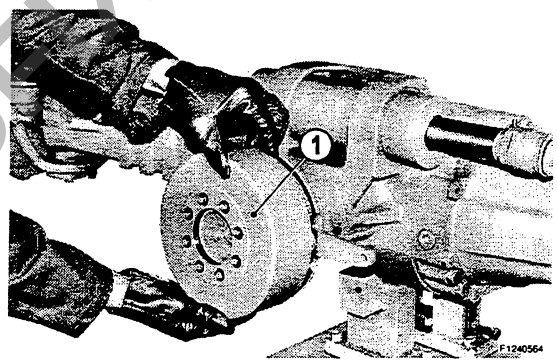
GB b

If the lever (6) has been removed, install it and hold it in position with the snap ring (5). Fit the shoes assembly (4).



GB c

Make sure that the shoes (4) centre the slot of the fulcrum pin and rest on the surface of the lever (6).



GB d

Fit the drum (1).
NOTE. Make sure that the friction surface of the drum carries no trace of grease and is perfectly clean.

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a

ITA Controllare che i satelliti abbiano un leggero gioco rispetto il primo ingranaggio planetario.
Posizionare il secondo ingranaggio planetario (6) ed il secondo gruppo di frizione (7) nel corpo differenziale (9).

D Kontrollieren, ob die Planetengetriebe etwas Spiel im Verhältnis zum ersten Planetengetriebe haben.
Das zweite Planetengetriebe (6) und das zweite Kupplungsaggregat (7) in den Differentialkörper (9) einsetzen.

ESP Controlar que los satelites tengan un ligero juego respecto al primero engranaje planetario.
Colocar el segundo engranaje planetario (6) y el segundo grupo de friciòn (7) en el cuerpo diferencial (9).

F Contrôler que les satellites aient un peu de jeu par rapport au premier engrenage planétaire.
Mettre le deuxième engrenage planétaire (6) en place ainsi que le second groupe de friction (7) du corps différentiel (9).

b

ITA Allineare i fori di lubrificazione della corona (4) con le cave della scatola differenziale sulle sporgenze del gruppo di frenatura. Posizionare la corona (4) sul corpo differenziale (9) e bloccarla con le viti (3) spalmate con Loctite 242.
Coppia di serraggio viti: 128÷142 Nm
NOTA. Serrare le viti con il metodo del serraggio incrociato.

D Die Schmierlöcher des Kranzes (4) der Differentialschachtel mit den Vorsprüngen des Bremsaggregats ausrichten. Den Kranz (4) auf den Differentialkörper (9) positionieren und mit den Schrauben (3), die zuvor mit Loctite 242 geschmiert wurden, blockieren. Anzugsmoment der Schrauben: 128÷142 Nm.
BEMERKUNG. Sie Schrauben im Kreuz fest schrauben.

ESP Alinear los agujeros de lubrificar de la corona con los nichos de la caja diferencial (4) sobre las partes salientes del grupo de frenadura.
Colocar la corona (4) sobre el cuerpo diferencial (9) y bloquearla con los tornilloss: 128÷142 Nm.
NOTA. Apretar los tornillos de manera cruzada.

F Aligner les trous de lubrification de la couronne (4) avec les creux du carter différentiel sur les saillies du groupe de freinage. Placer la couronne (4) sur le corps différentiel (9) et bloquer celle-ci avec les vis (3) enduites de Loctite 242.
Couple de serrage des vis: 128÷142 Nm.
NOTE. Serrer les vis avec la méthode de serrage croisée.

c

ITA Se sono stati rimossi, montare i cuscinetti (5) e (8) utilizzando l'attrezzo **T17**.

D Falls sie abmontiert wurden, die Lager (5) und (8) mit dem Werkzeug **T17** montieren.

ESP Si han sido removidos, montar los cojinetes (5) y (8) utilizando la herramienta **T17**.

F S'ils ont été enlevés, remonter les paliers (5) et (8) à l'aide de l'outil **T17**.

d

ITA Installare nel corpo centrale (1) il gruppo differenziale (2) completo.
Per i dettagli, vedere «INSTALLAZIONE GRUPPO DIFFERENZIALE».

D In den zentralen Körper (1) das vollständige Differentialaggregat (2) installieren.
Für weitere Einzelheiten, siehe «INSTALLATION DES DIFFERENTIALAGGREGATS».

ESP Introducir en el cuerpo central (1) el grupo diferencial (2) completo.
Para los detalles, vease «INSTALACION GRUPO DIFERENCIAL»

F Installer dans le corps central (1) le groupe différentiel (2) complet.
Pour tout détail, voir «INSTALLATION DU GROUPE DIFFERENTIEL».

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NOTE: Metric Dimensions Shown in Brackets [ ].

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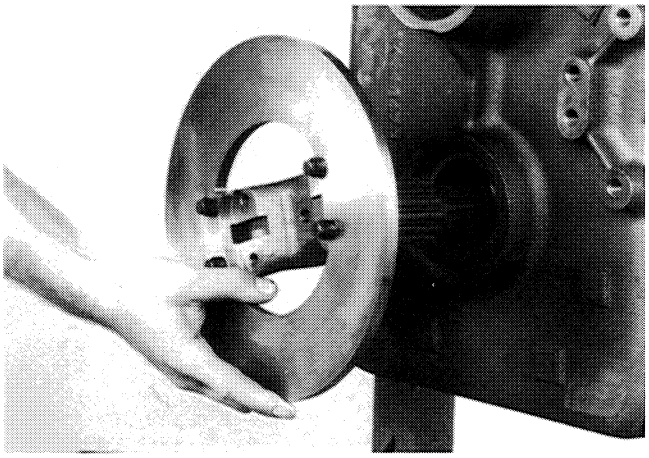


Figure 44
Flange removed. **NOTE:** Brake disc is optional and was removed with flange.

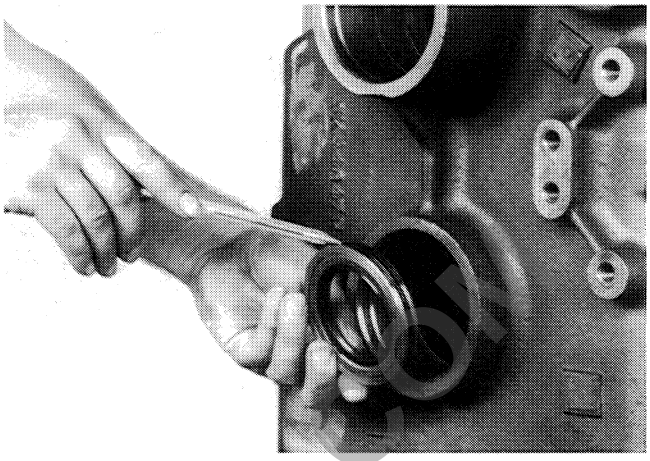


Figure 47
Remove sleeve and "O" ring.

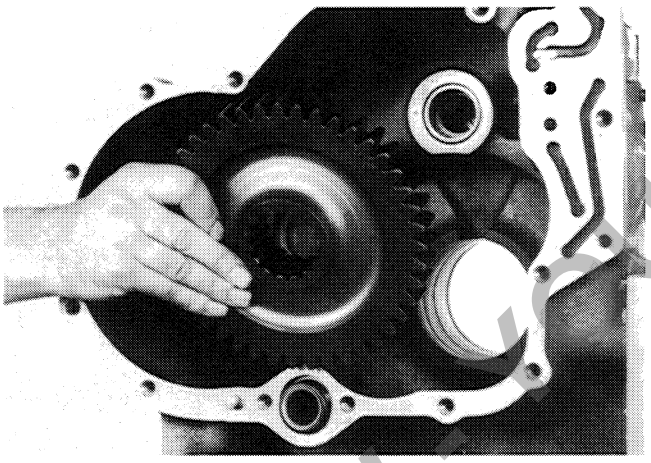


Figure 45
Remove output gear.

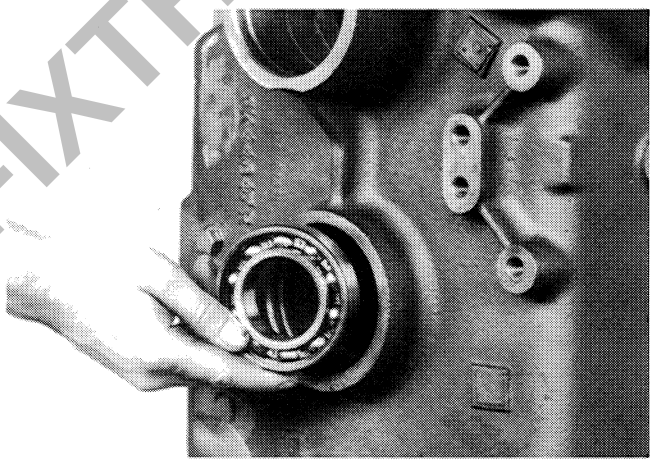


Figure 48
Remove output shaft rear bearing.

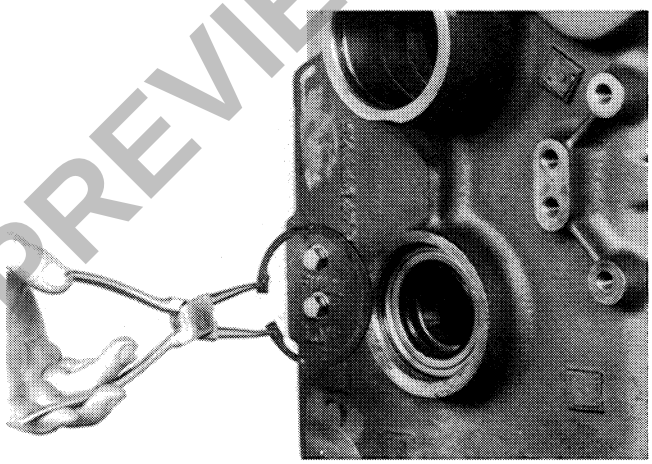


Figure 46
Remove flange oil seal sleeve retainer ring.

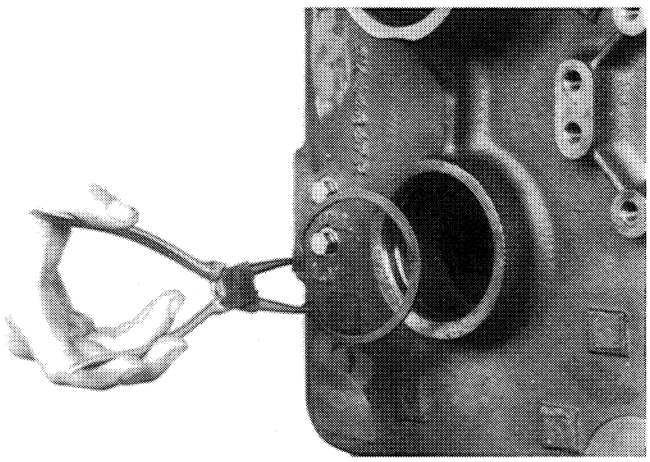


Figure 49
Remove bearing locating ring.

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REASSEMBLY OF FORWARD CLUTCH
(See cleaning and inspection page.)

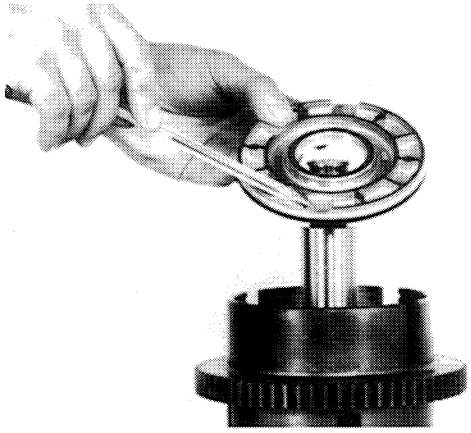


Figure 227
Clutch piston bleed orifice must be clean and free of any foreign material.

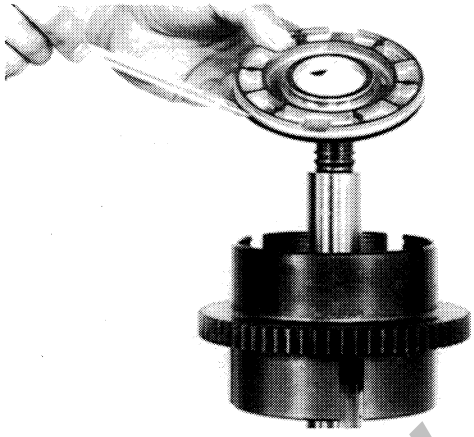


Figure 228
Install inner and outer clutch piston seal rings. Size inner ring as explained in Figure 93. Install clutch piston in clutch drum. Use caution as not to damage sealing rings.

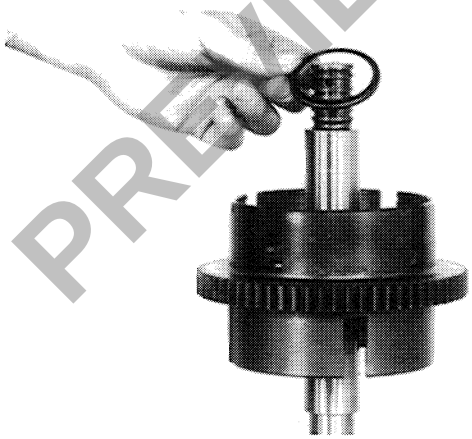


Figure 229
Install clutch piston wear plate.

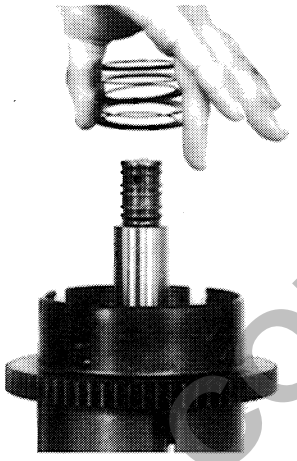


Figure 230
Install piston return disc springs. First spring with large diameter of bevel toward wear plate. Alternate five (5) springs. **Note:** See page 104.

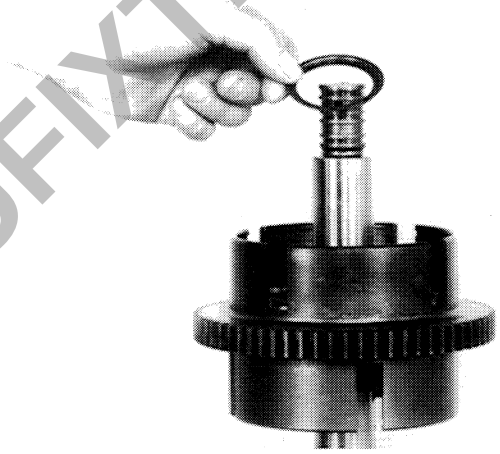


Figure 231
Position return spring ring retainer on clutch shaft.

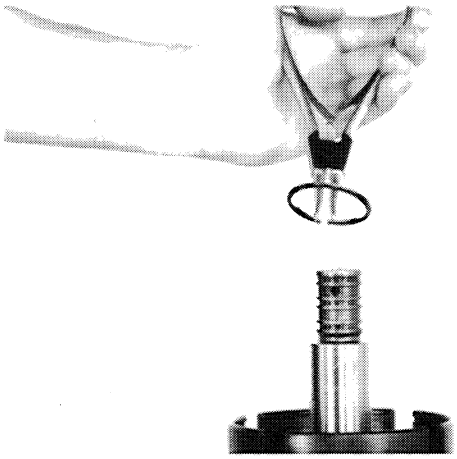


Figure 232
Start ring on clutch with snap ring pliers.

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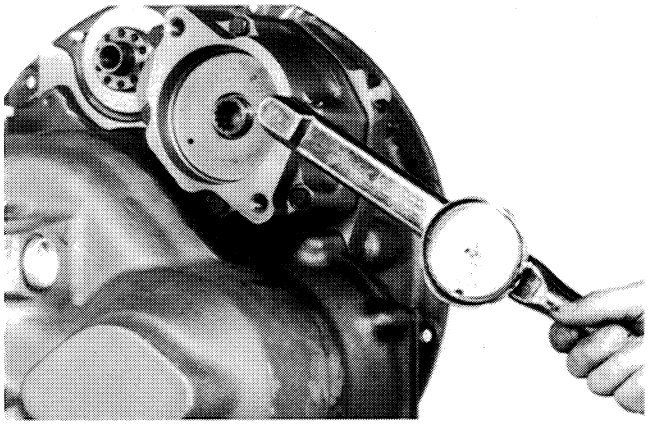


Figure 409
Install charging pump to converter housing bolts and washers and tighten to specified torque. See torque chart.

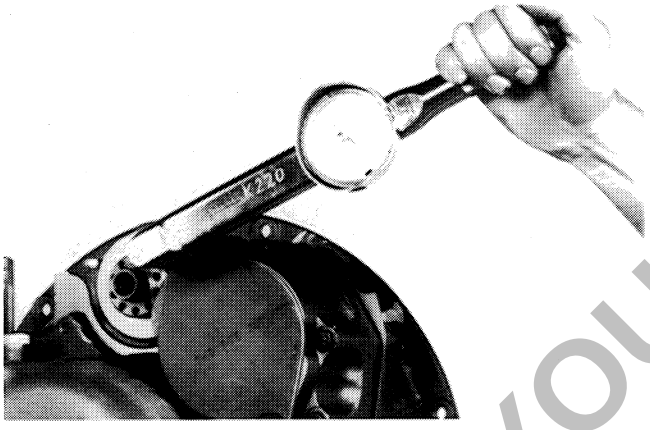


Figure 410
If auxiliary pump is used, it is not necessary to install the permanent pump hole cover. With new gasket in place, install pump hole cover on charging pump. Install bolts and washers and tighten to specified torque. See torque chart.

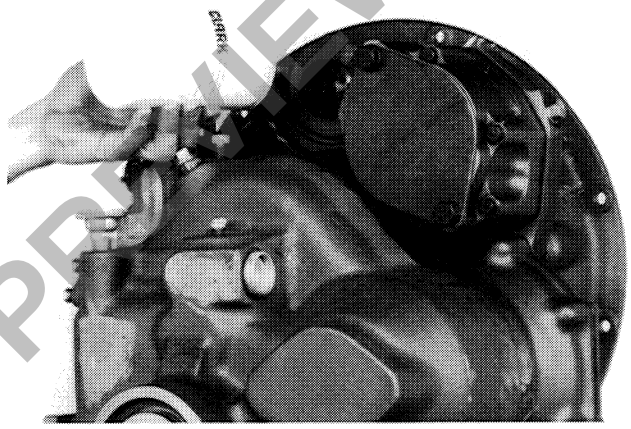


Figure 411
Install oil filter on regulating valve. Tighten filter to 20-25 lbf·ft [27-34 N·m]. If parking brake is not used proceed to Figure 415.

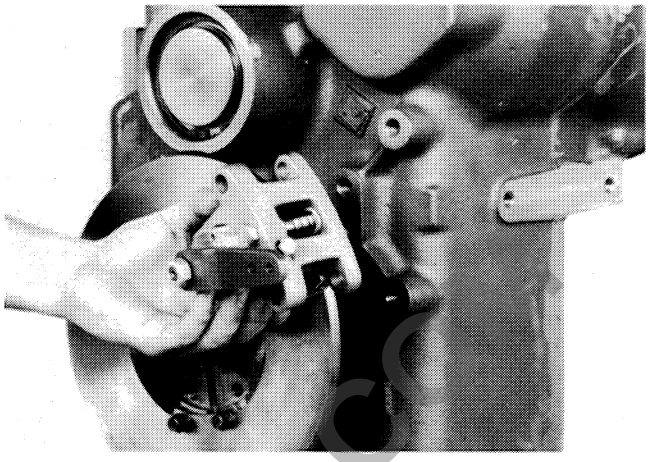


Figure 412
Position caliper brake assembly on brake disc.

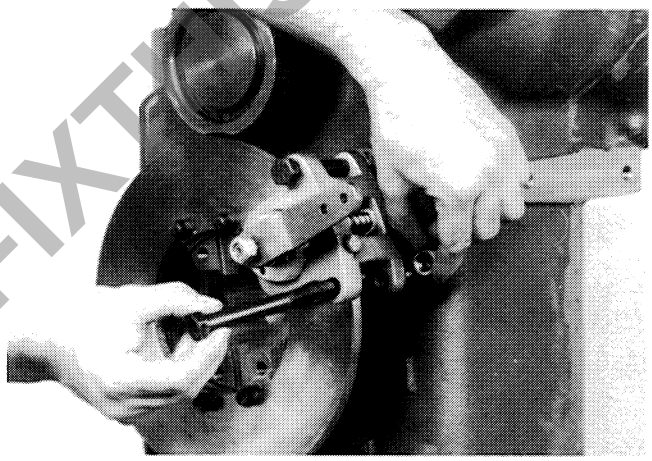


Figure 413
Install caliper brake mounting screw through brake assembly and through locknut. Apply Loctite #262 to threads and install screw in transmission case.

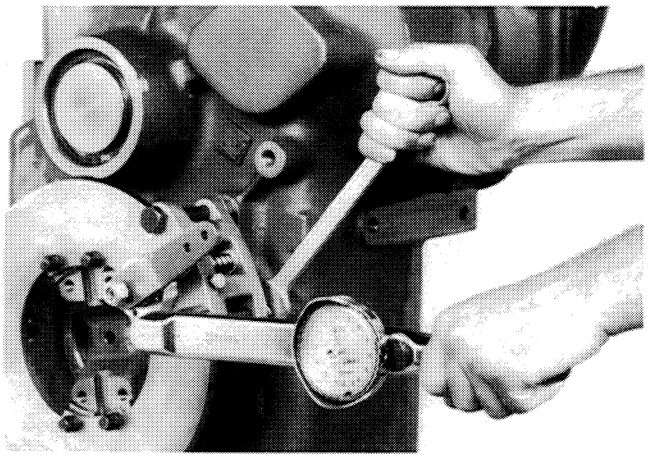


Figure 414
Mounting screws to be installed to allow free movement of caliper pads to disc. Tighten jam nut. See torque chart. See page 99 for brake information.

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