

- | | | | |
|-----------------------|----------------------------------|--------------------------------------|--|
| 1. Washer | 4. Right hand intermediate piece | 8. Left hand bracket | 10. Shim |
| 2. Bearing | 5. Washer | 9. Trunnion mounting bolt, left hand | 11. Trunnion mounting bolt, right hand |
| 3. Right hand bracket | 6. Bracket mounting bolt | 7. Left hand intermediate piece | |

Figure 156 - Main Transmission Mountings - Removal

- al.** Remove the four M12 (Grade 12.9) right hand trunnion mounting bolts (Fig 156(11)) and the two intermediate pieces (Fig 156(4)) securing the main transmission housing to the mounting on the right hand side of the chassis. Discard the right hand trunnion mounting bolts (Fig 156(11)) and retain the two intermediate pieces (Fig 156(4)).
- am.** Remove the trolley jack from underneath the main transmission.
- an.** Lower the main transmission assembly out of the chassis.

NOTE

If the main transmission is being exchanged, change over all associated mounting brackets and fittings not supplied.

76. Cleaning and Inspection

WARNING

ENSURE THE SAFETY REQUIREMENTS FOR USE OF COMPRESSED AIR ARE STRICTLY ADHERED TO. INADVERTANT USE OF COMPRESSED AIR EQUIPMENT MAY RESULT IN INJURY TO PERSONNEL.

- a.** Clean the transmission with an appropriate cleaning agent and blow dry with compressed air. Inspect all parts for wear or damage, replace as required.
- b.** Inspect the main transmission mounting brackets on the chassis for serviceability; replace any worn or damaged parts.
- c.** Carefully deburr the torque ball housings and the torque ball shell halves (Fig 157) of the front and intermediate torque ball assemblies.

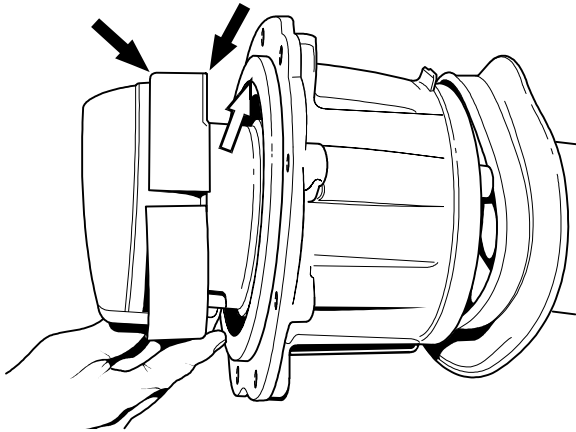


Figure 157 - Torque Ball Housing and Torque Ball Shell Halves

- d. Clean the tooth profile and slip joint spline cavity of the front and intermediate axle propeller shafts and pack the cavity behind each tooth profile with a molybdenum disulphide based grease (XG-276).
- e. Lubricate the front and intermediate axle propeller shaft grease nipples with grease (XG-274).
- f. Remove the left hand and right hand main transmission mounting brackets (Fig 156(8) and (3)) from the chassis and inspect the rubber bushes, replace as required.
- g. Install the left hand and right hand main transmission mounting brackets. Torque the M36 bracket mounting bolts securing the main transmission mounting brackets to the chassis to 180 Nm (Fig 158).

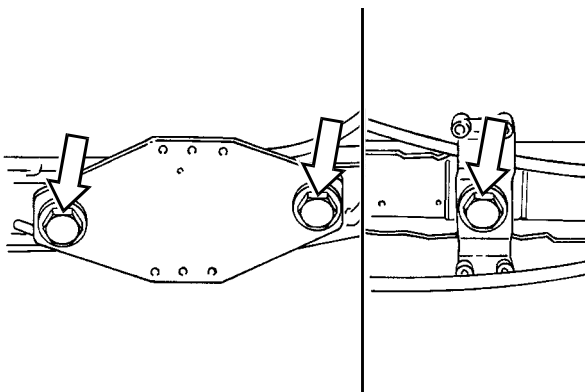


Figure 158 - Main Transmission Mounting Brackets

77. *Adjustment*

- a. Adjust the front axle torque ball assembly (refer to Group 7 - Axle Group, para 101).

- b. Adjust the intermediate axle torque ball assembly (refer to Group 7 - Axle Group para 111).

78. *Installation*

- a. Lift the main transmission into position using a crane and a suitable sling attached to the lifting bracket (Table 2, Item 18).

NOTE

Obtain new trunnion mounting bolts (Fig 156(9) and (11)) and shims (Fig 156(10)) to fasten the main transmission housing to the main transmission mounting brackets.

- b. Align the holes of the main transmission housing with the mating holes in the main transmission mounting brackets.
- c. Insert the right hand intermediate pieces (Fig 156(4)) and the four M12 (Grade 12.9) right hand trunnion mounting bolts (Fig 156(11)). Coat the threads of the bolts with a thread locking agent (Loctite 243) and torque the bolts to 150 Nm (Fig 159).

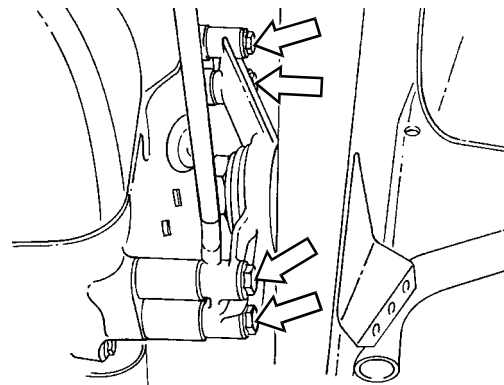


Figure 159 - Right Hand Main Transmission Mounting Bracket

- d. Insert the new shims (Fig 156(10)) as required to pack the space between the main transmission housing and the left hand main transmission mounting bracket.
- e. Insert the six M16 (Grade 12.9) left hand trunnion mounting bolts (Fig 156(9)). Coat the threads of the bolts with a thread locking agent (Loctite 243) and torque the bolts to 340 Nm (Fig 160).

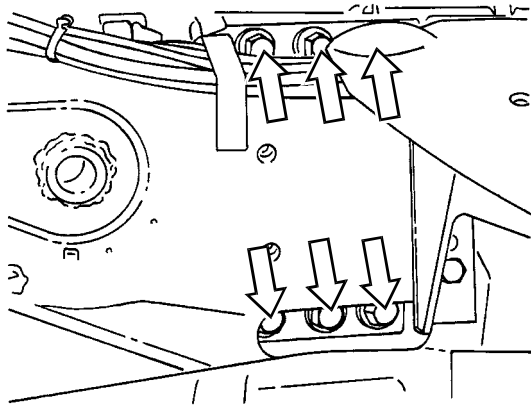


Figure 160 - Left Hand Main Transmission Mounting Bracket

- f. Remove the lifting sling, lifting bracket (Table 2, Item 18) and spacers from the main transmission.
- g. Refit the spacers and blanking bolts to the top of the main transmission housing. Coat the threads of the bolts with a thread sealing agent (Loctite 515) and torque the bolts to 40 Nm.
- h. Connect the intermediate axle and connections to the main transmission as follows:

WARNING

THE INTERMEDIATE AXLE TORQUE TUBE WILL ACT LIKE A GUILLOTINE IF IT INADVERTANTLY SLIDES TOWARD THE TRANSFER CASE WHILST THE PROPELLER SHAFT BOLTS ARE BEING INSTALLED AND LOSS OF FINGERS CAN OCCUR. CHAIN BACK THE TORQUE BALL HOUSING SO THAT IT WILL NOT MOVE BEFORE ATTEMPTING TO INSTALL THE PROPELLER SHAFT BOLTS.

- (1) With a trolley jack and a suitable extension piece raise the intermediate axle torque tube until the intermediate axle propeller shaft flange is aligned with the transfer case intermediate axle output flange.

- (2) Install the torque ball shim pack (previously calculated, see para 77) to the transfer case intermediate axle output housing. Temporarily secure the shims with grease.

CAUTION

TO PREVENT DAMAGE TO THE INTERMEDIATE AXLE TORQUE BALL HOUSING, SUPPORT THE TORQUE TUBE WITH A TROLLEY JACK AND A SUITABLE EXTENSION PIECE WHILE INSTALLING THE TORQUE BALL HOUSING BOLTS.

- (3) Connect the intermediate axle propeller shaft to the transfer case intermediate axle output flange with the four M12 (Grade 10.9) bolts. Coat the threads of the bolts with a thread locking agent (Loctite 243) prior to assembly and torque the bolts to 100 Nm.
- (4) Install the outer torque ball halves in the intermediate axle torque ball housing. Lubricate the torque ball halves with a molybdenum disulphide based grease (XG-276).
- (5) Slowly release the intermediate axle ensuring the intermediate axle torque ball housing flange is aligned with the transfer case intermediate axle output housing flange.
- (6) Coat the mating surface of the intermediate axle torque ball housing with a sealant (Omnifit FD 10, Part No. 002 989 00 20 10, or equivalent) and connect the intermediate axle torque ball housing to the transfer case intermediate axle output housing with the M10 (Grade 12.9) bolts (Fig 161). Torque the bolts to 65 Nm.
- (7) Remove the block and tackle from the intermediate axle and remove the jack and extension piece supporting the intermediate axle torque tube.

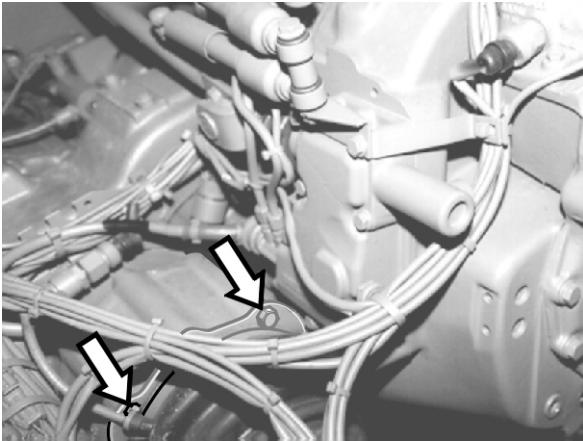
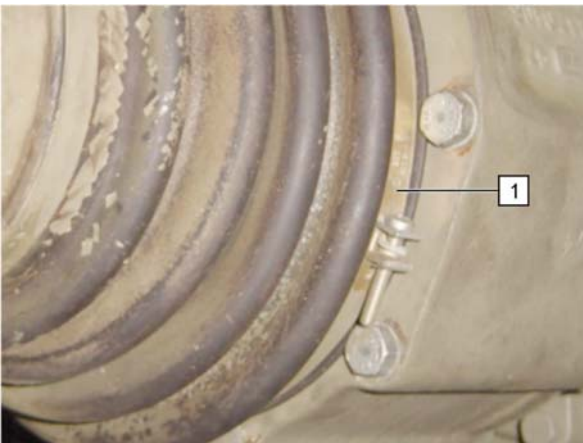


Figure 161 - Intermediate Axle Drive Torque Ball Housing - Installation

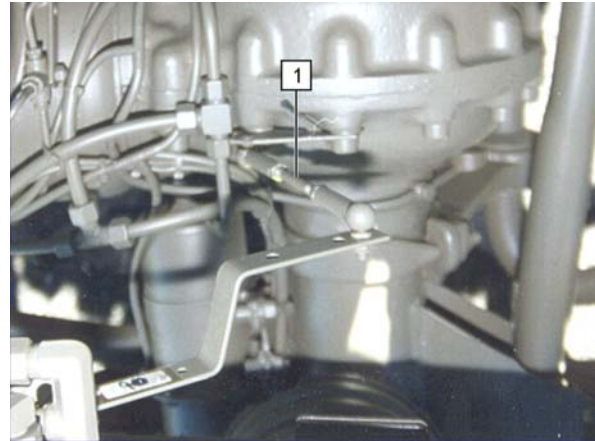
- (8) Slide the rubber boot over the intermediate axle torque ball housing and secure with the spring clamp (Fig 162(1)).



1. Spring clamp

Figure 162 - Intermediate Axle Torque Ball Housing Rubber Boot - Securing

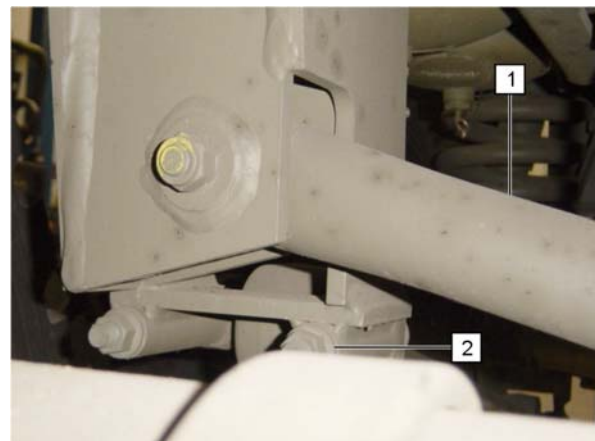
- i. Connect the ALB linkage (Fig 163(1)) ball joint to the socket on the mounting bracket on the intermediate axle housing and secure with the locking clip. Lubricate the inside of the socket with grease prior to connecting the linkage.



1. ALB linkage

Figure 163 - ALB Linkage - Connecting

- j. Connect the intermediate axle panhard rod (Fig 164(1)) to the right hand chassis rail mounting bracket (refer to Group 19 Frame/Chassis Group, para 345).
- k. Slide the right hand inner mounting bolt (Fig 164(2)) securing the right hand longitudinal link into position and fit the self locking nut. Torque the bolt to 150 Nm.



1. Intermediate axle panhard rod
2. Inner mounting bolt

Figure 164 - Intermediate Axle Panhard Rod Mount Connection

- l. Align the left hand and right hand shock absorbers lower mounting eyes with their mounts on the intermediate axle and install the mounting bolts, serrated washers, angle brackets and self locking nuts. Torque the mounting bolts to 250 Nm.
- m. Connect the front axle and connections to the main transmission as follows:

WARNING

THE FRONT AXLE TORQUE TUBE WILL ACT LIKE A GUILLOTINE IF IT INADVERTANTLY SLIDES TOWARD THE TRANSFER CASE WHILST THE PROPELLER SHAFT BOLTS ARE BEING INSTALLED AND LOSS OF FINGERS CAN OCCUR. CHAIN BACK THE TORQUE BALL HOUSING SO THAT IT WILL NOT MOVE BEFORE ATTEMPTING TO INSTALL THE PROPELLER SHAFT BOLTS.

- (1) With a trolley jack and a suitable extension piece raise the front axle torque tube until the front axle propeller shaft flange is aligned with the transfer case front axle output flange and install the torque ball shell outer halves.
- (2) Install the torque ball shim pack (previously calculated, see para 77) to the transfer case front axle output housing. Temporarily secure the shims with grease.

CAUTION

TO PREVENT DAMAGE TO THE FRONT AXLE TORQUE BALL HOUSING, SUPPORT THE TORQUE TUBE WITH A TROLLEY JACK AND A SUITABLE EXTENSION PIECE WHILE INSTALLING THE TORQUE BALL HOUSING BOLTS.

- (3) Connect the front axle propeller shaft to the transfer case front axle output flange with the four M10 x 30 (Grade 10.9) propeller shaft mounting bolts. Coat the threads of the bolts with a thread locking agent (Loctite 243) prior to assembly and torque the bolts to 75 Nm.

- (4) Install the outer torque ball halves in the front axle torque ball housing. Lubricate the torque ball halves with a molybdenum disulphide based grease (XG-276).
- (5) Slowly release the front axle, ensuring the front axle torque ball housing mounting flange is aligned with the transfer case front axle output housing flange.
- (6) Coat the mating surface of the front axle torque ball housing with a sealant (Omnifit FD 10, Part No. 002 989 00 20 10, or equivalent) and connect the torque ball housing to the transfer case front axle output housing with the M10 x 150 (Grade 10.9) bolts (Fig 165). Torque the bolts to 65 Nm.

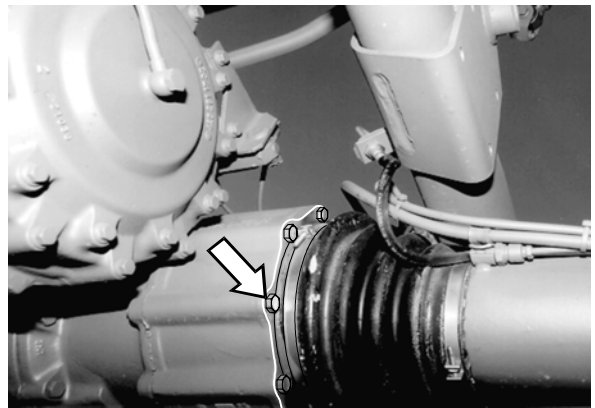
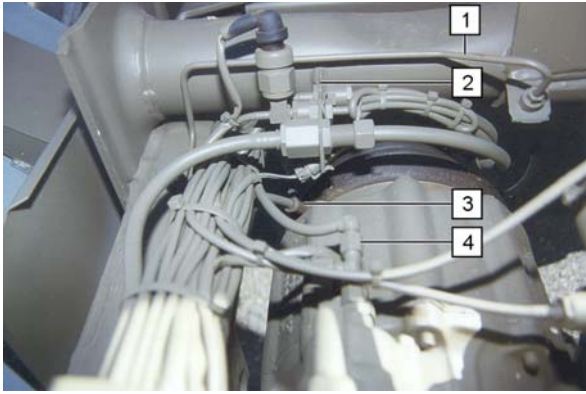


Figure 165 - Front Axle Torque Ball Housing - Installation

- (7) Remove the block and tackle from the front axle and remove the jack and extension piece supporting the front axle torque tube.
- (8) Slide the rubber boot over the front axle torque ball housing and secure with the spring clamp.
- (9) Secure the flexible brake hose to the mounting bracket on the crossmember above the front axle torque ball with the locking clip and connect the brake hose to the steel brake pipe (Fig 166(1)).



1. Steel brake pipe
2. Mounting bracket
3. Torque tube boot breather connector
4. T-piece

Figure 166 - Front Axle Torque Ball Connections

- (10) Connect the front axle torque tube boot breather line to the front axle torque tube boot breather connector (Fig 166(3)) and secure the line with a cable tie.
- n. Connect the front panhard rod to the left hand chassis rail mounting bracket with the mounting bolt and lock nut (refer to Group 19 Frame/Chassis Group, para 346).
- o. Connect the air compressor supply pipe and fittings as follows:
- (1) Connect the air compressor supply pipe to the connector on the air dehumidifier. Do not tighten the union nut at this stage.
 - (2) Connect the air compressor supply pipe with new sealing ring and thrust washer to the joiner at the rear of the splitter transmission. Do not tighten the connection at this stage.
 - (3) Secure the air compressor supply pipe to the air outlet pipes at the air dehumidifier with the four clamps, two M6 bolts and lock nuts.
 - (4) Connect the air compressor supply pipe clamp to the two mounting brackets on the right hand chassis rail and secure with the M6 bolts and lock nuts.

- (5) Tighten the air compressor supply pipe connections at the connector on the air dehumidifier and at the joiner at the rear of the splitter transmission.

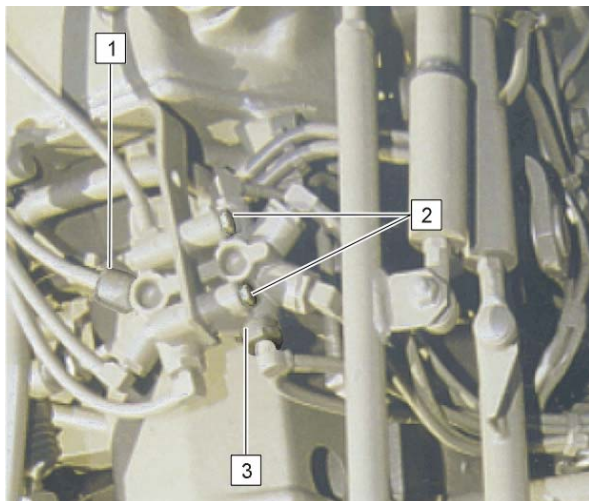
- p. Remove the plugs and connect the two main transmission oil cooler flexible hoses (previously tagged on removal) to the oil lines located at the chassis cross member in front of the auxiliary transmission (working gear group).
- q. Connect the hydraulic triple pump to the PTO (refer to Group 11 - Hydraulic Group, para 167).

NOTE

Ensure that all cable ties (noted on removal) are replaced. As a rule of thumb cable ties must fasten wiring looms and air lines at intervals of 500 mm but may be fitted at shorter intervals when required.

- r. Connect the left hand air supply manifold, air lines and associated leads, the right hand fording manifold air lines and associated leads and main transmission component air lines and electrical leads as follows:

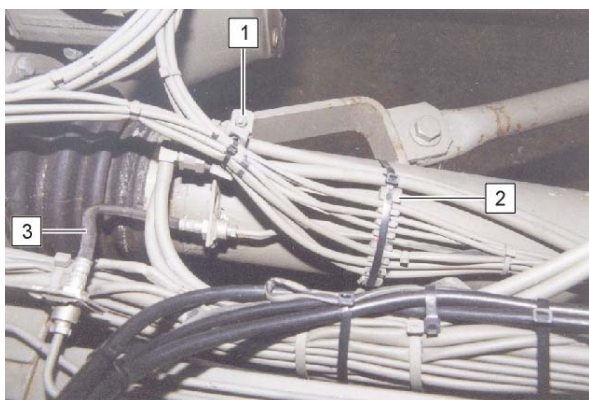
- (1) Untie the left hand air supply manifold, lines and associated leads from their temporary position on the left hand side of the vehicle and position them in their mounted positions on the main transmission.
- (2) Untie the right hand fording manifold and lines from their temporary position on the left hand side of the vehicle and position the manifold and lines in their normal mounted positions on the main transmission.
- (3) Secure the left hand supply air manifold (Fig 167(3)) and the right hand fording manifold (Fig 167(1)) to the bracket on top of the main transmission with the two M6 mounting bolts (Fig 167(2)), washers and nuts.



1. Right hand fording manifold
2. Mounting bolt
3. Left hand supply air manifold

Figure 167 - Left Hand Supply Air Manifold and Right Hand Fording Manifold - Installation

- (4) Connect the flexible brake hose (Fig 168(3)) to the steel brake pipe on the top of the intermediate axle torque tube. Secure the hose to the mounting bracket on the torque tube with the locking clip.



1. M6 bolt
2. Insulator piece
3. Flexible brake hose

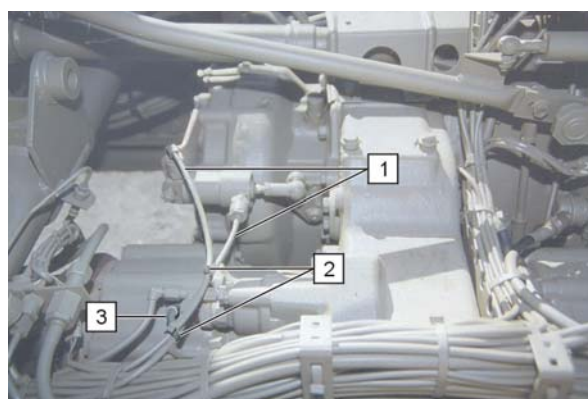
Figure 168 - Intermediate Axle Torque Tube Connection

- (5) Connect the torque tube boot breather line to the torque tube boot connector on the intermediate axle and secure with the cable tie.
- (6) Secure the CTIS hose with bracket and the park brake actuator cylinder air supply line to the mounting bracket at the front of the intermediate axle torque tube with the M6 bolt (Fig 168(1)) and self locking nut.

NOTE

Ensure that all cable ties (noted on removal) are replaced. As a rule of thumb cable ties must fasten wiring looms and air lines at intervals of 500 mm but may be fitted at shorter intervals as required.

- (7) Secure the hoses, air lines and leads to the intermediate axle torque tube with cable ties. Ensure the insulator pieces (Fig 168(2)) are fitted in the positions noted on removal.
- (8) Connect the front brake wear indicator loom connector to the main wiring loom on the left hand chassis rail. Secure the front brake wear indicator loom to the main wiring loom with cable ties.
- (9) Connect the CTIS, breather and differential lock lines (tagged on removal) to their respective connectors on the mounting bracket (Fig 166(2)) situated on the chassis crossmember above the front axle torque ball.
- (10) Connect the T-piece (Fig 166(4)) (with air lines attached) to the six-wheel drive shift cylinder.
- (11) Connect the electrical lead (Fig 169(3)) to the six-wheel drive indicator switch.
- (12) Connect the air lines (Fig 169(1)) (previously tagged on removal) to the auxiliary transmission (working gear group) shift cylinder.

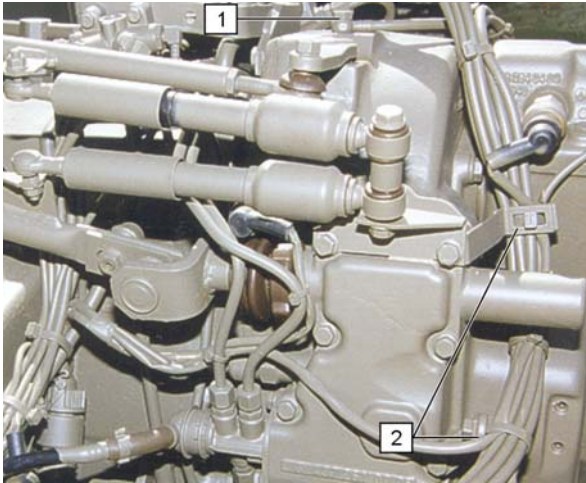


1. Air lines
2. Cable tie
3. Electrical lead

Figure 169 - Auxiliary Transmission (Working Gear Group) Shift Cylinder Connections

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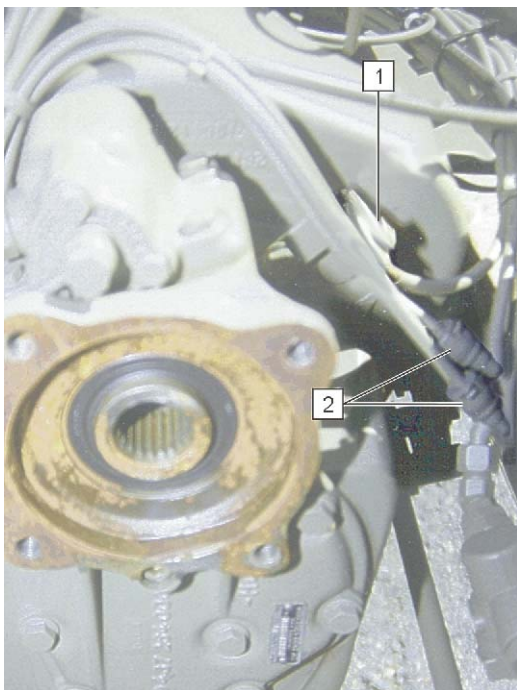
- (13) Secure the breather line to the top of the main transmission with the banjo bolt (Fig 170(1)). Renew the sealing washers on the banjo bolt prior to installation.



- 1. Banjo bolt
- 2. Mounting bracket

Figure 170 - Right Hand Fording Manifold Loom - Connections

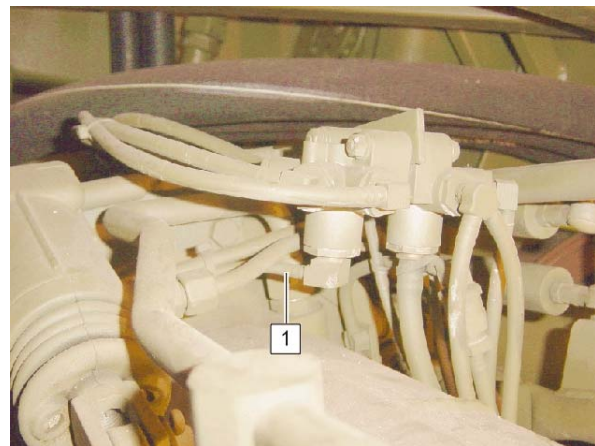
- (14) Slide the dust cover for each of the rear and intermediate axle brake actuator vent line quick disconnect fittings (Fig 171(2)) onto the vent lines.



- 1. Mounting bracket
- 2. Quick disconnect fitting

Figure 171 - Rear and Intermediate Axle Brake Actuator Connections

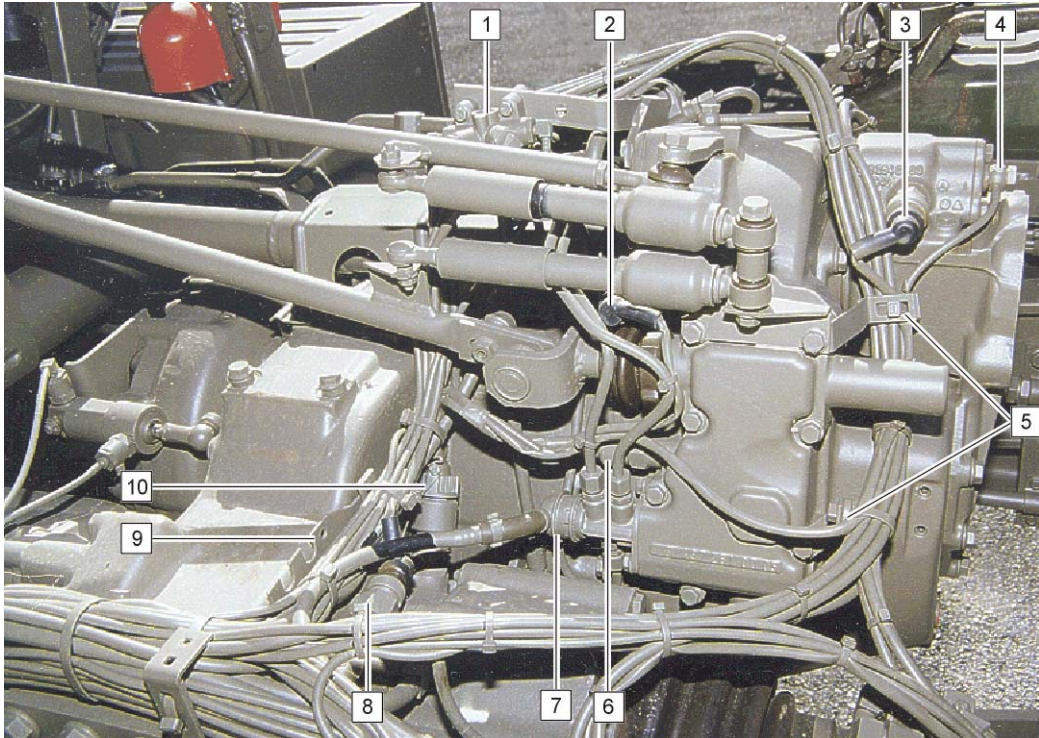
- (15) Connect the rear and intermediate axle brake actuator vent line quick disconnect fittings (tagged on removal). Fully insert each vent line into their respective quick disconnect fitting until it bottoms and lock the dust cover for each of the vent line quick disconnect fittings over their respective fitting.
- (16) Secure the air lines and the intermediate axle torque tube boot breather line, with insulator, to the mounting bracket (Fig 171(1)) on the right hand rear of the main transmission with cable ties.
- (17) Connect the air line to the PTO shift cylinder (Fig 173(4)) with the banjo bolt. Renew the sealing washers on the banjo bolt prior to installation.
- (18) Connect the electrical lead to the PTO shift cylinder (Fig 173(3)).
- (19) Connect the vent line (Fig 172(1)), tagged on removal, to the bottom of the right hand side fording manifold. Secure the vent line to the planetary gear shift cylinder air line with two cable ties.



- 1. Vent line

Figure 172 - Fording Manifold Vent Line

- (20) Secure the right hand fording manifold air lines, the air lines to the quick release elbows, the intermediate axle torque tube boot breather line, the PTO air line and the PTO electrical lead to the mounting brackets (Fig 170(2)) on the left hand rear of the main transmission with cable ties.
- (21) Connect the electrical lead to the pulse generator (speedometer) (Fig 173(10)) located on top of the transfer case intermediate axle output flange housing and seal the connector with lock wire.



- | | |
|---------------------------------------|---|
| 1. Left hand supply air manifold | 6. Gear shift gate indicator switch |
| 2. Reverse light switch | 7. Vent line |
| 3. PTO shift cylinder pressure switch | 8. Park brake warning light pressure switch |
| 4. PTO air line | 9. Mounting bracket |
| 5. Mounting bracket | 10. Pulse generator (speedometer) |

Figure 173 - Main Transmission Switches and Looms - Connections

- (22) Connect the electrical lead to the park brake warning light pressure switch (Fig 173(8)) situated immediately above the intermediate axle output housing and behind the front winching guide tube rear mounting bracket.
- (23) Connect the vent line (Fig 173(7)) at the base of the planetary gear shift cylinder control valve and secure with the locking clip.
- (24) Connect the electrical lead to the gear shift gate indicator switch (Fig 173(6)). Connect the electrical lead to the reverse light pressure switch (Fig 173(2)).
- (25) Connect the air supply line (tagged on removal) for the planetary gear shift cylinder control valve at the connector immediately below the left hand supply air manifold.
- (26) Cable tie the gear shift gate indicator switch and the reverse light switch electrical leads to the planetary gear shift cylinder air lines and to the loom for the left hand supply air manifold (Fig 173(1)).
- (27) Cable tie the air supply line for the planetary gear shift cylinder control valve to the left hand supply air manifold air lines and then cable tie the left hand supply air manifold loom to the mounting bracket (Fig 173(9)) on the main transmission.
- (28) Cable tie the air line loom for the left hand air supply manifold and the electrical lead for the pulse generator (speedometer) to the rear mounting bracket for the front winching guide tube.
- (29) Clip the air lines for the planetary gearshift cylinder and the air supply line for the planetary gear shift cylinder control valve into the mounting brackets on the main transmission.

NOTE

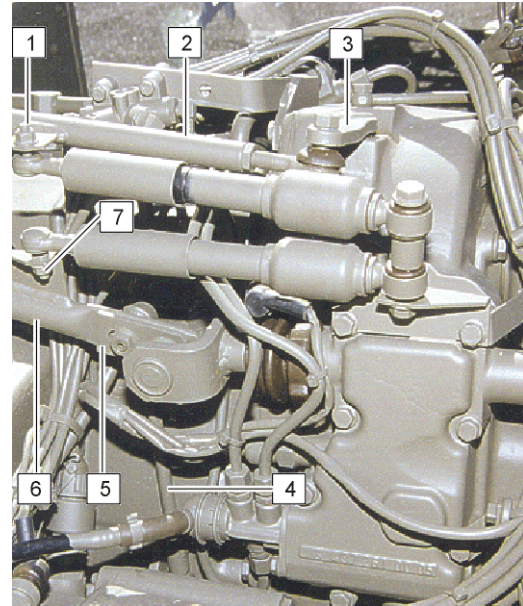
Ensure that all cable ties (noted on removal) are replaced. As a rule of thumb cable ties must fasten wiring looms and air lines at intervals of 500 mm but may be fitted at shorter intervals as required.

- s. Inspect the electrical leads and air lines to the main transmission, the left hand and right hand chassis rail looms, and associated components to ensure the cable ties, cut during the removal, have been replaced. Rectify as required.
- t. Connect and adjust the main transmission gear shift shaft and the forward/reverse shift rod as follows:
 - (1) Connect the forward/reverse shift rod to the forward/reverse lever at the control panel with the serrated washer and nut.
 - (2) Connect the forward/reverse shift rod to the main transmission forward/reverse selector lever with the serrated washer and nut.
 - (3) Secure the dampener to the forward/reverse shift rod at the main transmission end with the self locking nut (Fig 174(1)).

NOTE

Fit the wave washer to the outside of the left hand O-ring prior to connecting the main transmission gear shift shaft to the main transmission gear shift lever.

- (4) Connect the main transmission gear shift shaft to the main transmission gear shift lever with the spacer tube, O-rings and wave washer and secure with the M10 x 70 bolt and lock nut (as noted on removal).
- (5) Secure the main transmission gear shift shaft (Fig 174(6)) to the ball joints for the vertical shift rod (Fig 174(4)) and the cross shaft flange with the shift shackle (Fig 174(5)), flat washer and nuts. Do not torque the ball joint nuts at this stage.



- 1. Self locking nut
- 2. Forward/reverse shift rod
- 3. Forward/reverse selector lever
- 4. Vertical shift rod
- 5. Shift shackle
- 6. Main transmission gear shift shaft
- 7. Self locking nut

**Figure 174 - Main Transmission Gear Shift Levers
- Connections**

- (6) Connect the dampener to the main transmission gear shift shaft at the main transmission end with the self locking nut (Fig 174(7)).
- u. Connect the propeller shaft - rear section and guard to the main transmission (refer to EMEI Veh D 393 Group 6 - Main Transmission).

- v. Mount the front winching guide tube in position and secure the front winching guide tube front mounting bracket to the chassis cross member with the two M6 Phillips head screws and spring washers.
- w. Position the front winching guide tube rear mounting bracket on the bracket on the transfer case intermediate axle output housing and secure with the two M6 Phillips head screws, spring washers and lock nuts.
- x. Install the upper and lower fire extinguisher mounting brackets to the right hand equipment bin and secure with the eight M8 bolts, spring washers and nuts.
- y. Install the fire extinguisher on the right hand equipment bin.
- z. Fit and tighten the drain plugs in the main transmission housing, transfer case and auxiliary transmission (working gear group) and replenish the oil (Castrol Syntrans 75W/85). Refer to the Operator Handbook.
- aa. Connect the CTIS quick disconnects at the front and intermediate axle wheel hubs (Fig 175).

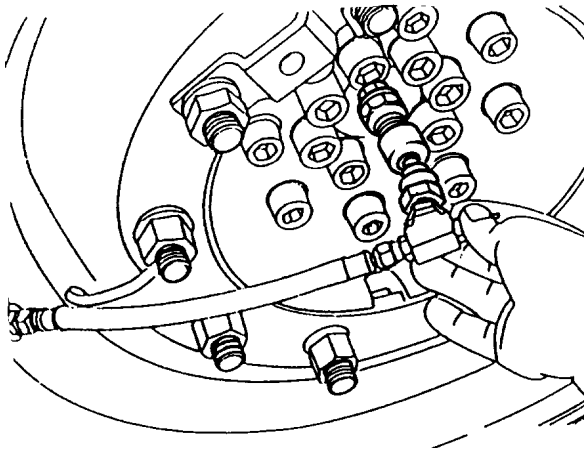


Figure 175 - CTIS Quick Disconnect Coupling - Installation

- ab. Remove the vehicle from the chassis stands.
- ac. Operate the battery isolation switch so that the batteries are connected to the vehicle.



WHEN THE ENGINE IS TO BE RUN WITH THE CABIN RAISED, ENSURE THAT THE ENGINE AIR INTAKE HOSE AND THE AIR COMPRESSOR INTAKE HOSE IS CONNECTED TO THE AIR CLEANER TO PREVENT THE INGRESS OF CONTAMINANTS.



WHEN THE ENGINE IS TO BE RUN WITH THE CABIN RAISED ENSURE THE HEATER HOSES AND UPPER STEERING SHAFT ARE CLEAR OF MOVING PARTS TO PREVENT DAMAGE TO COMPONENTS.

- ad. Run the engine, crack the banjo bolt (Fig 176(1)) at the oil feed line connection on the front of the auxiliary transmission (working gear group) and check the oil flow at the connection. Oil must discharge from the connection when the engine is running. Tighten the banjo bolt securely after the check.



1. Oil feed line

Figure 176 - Oil Feed Line Connection

- ae. Check the main transmission, hydraulic triple pump and connections for oil leaks, rectify as required.

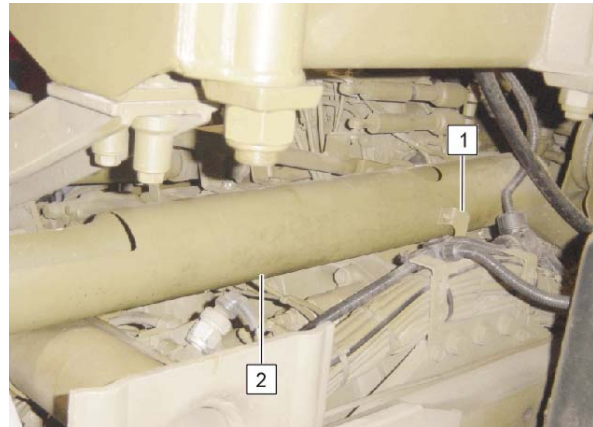
- af. Check the tyre inflation hoses for air leaks, rectify as required.
- ag. Check the auxiliary transmission (working gear group) linkage adjustment, see para 87.
- ah. Bleed the brakes (refer to EMEI Veh D 393 Group 8 - Brake System).
- ai. Lower and secure the cab (refer to EMEI Veh D 393 Group 01 - Access for Repair).
- aj. Adjust the main transmission gear shift shaft and main transmission gear shift lever (refer to EMEI Veh D 393 Group 6 - Main Transmission).
- ak. Adjust the forward/reverse shift linkage (refer to EMEI Veh D 393 Group 6 - Main Transmission).
- al. Stow the crane.
- am. Install the wheel hub covers on the front and intermediate axles.
- an. Inspect the ALB control linkage for damage; adjust if necessary (refer to Group 8 - Brake System, para 140).
- ao. Road test the vehicle, inspect for leaks and check the performance of the main transmission and service brakes. Check the main transmission oil level after the road test, top up if required.

Transmission (Transfer Case Remains Installed)

79. Removal

- a. Place the vehicle on chassis stands. Ensure the chassis is of sufficient height so that there is no weight on the suspension and the wheels are still resting on the ground.
- b. Unstow the vehicle crane and position the boom on the left hand side of the vehicle to allow access to the top of the main transmission.
- c. Raise and secure the cab (refer to EMEI Veh D 393 Group 01 - Access for Repair).
- d. Operate the battery isolation switch to disconnect the batteries from the vehicle electrical system.
- e. Remove the drain plugs from the main transmission housing, transfer case and auxiliary transmission (working gear group) and drain the oil into a suitable receptacle. Refer to the Operator Handbook.

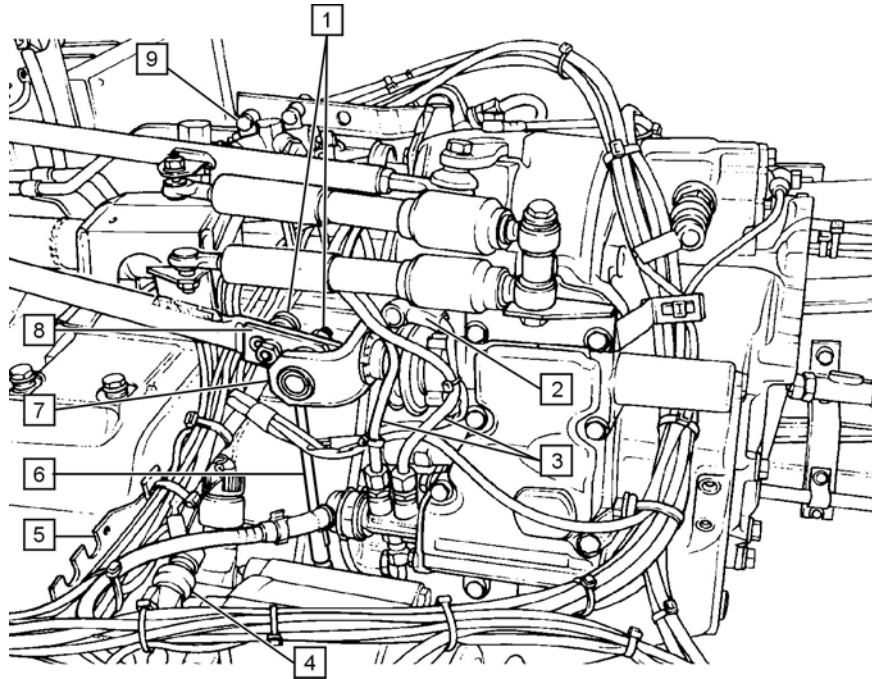
- f. Disconnect the hydraulic triple pump from the PTO (refer to Group 11 - Hydraulic System, para 165) and tie up free of the main transmission.
- g. Remove the fire extinguisher on the right hand equipment bin.
- h. Remove the eight M8 bolts, flat washers and nuts securing the upper and lower fire extinguisher mounting brackets to the right hand equipment bin and remove the brackets.
- i. Remove the two M6 Phillips head screws, spring washers and lock nuts securing the front winching guide tube rear mounting bracket (Fig 177(1)) to the bracket on the transfer case intermediate axle output housing.



- 1. Front winching guide tube rear mounting bracket
- 2. Front winching guide tube

Figure 177 - Front Winching Guide Tube

- j. Remove the two M6 Phillips head screws and spring washers securing the front winching guide tube front mounting bracket to the chassis cross member and remove the guide tube (Fig 177(2)).
- k. Remove the propeller shaft - rear section (refer to EMEI Veh D 393 Group 6 - Main Transmission).
- l. Disconnect the main transmission gear shift shaft and the forward/reverse shift rod as follows:
 - (1) Remove the two nuts and washers and the shift shackle (Fig 178(8)) securing the main transmission gear shift shaft ball joints (Fig 178(1)) to the vertical shift rod (Fig 178(6)) and the cross shaft flange (Fig 178(7)).



- | | |
|---|----------------------------------|
| 1. Shift shaft ball joint | 6. Vertical shift rod |
| 2. Reverse light pressure switch | 7. Cross shaft flange |
| 3. Air line | 8. Shift shackle |
| 4. Park brake warning light pressure switch | 9. Left hand supply air manifold |
| 5. Bracket | |

Figure 178 - Main Transmission - Connections

- (2) Remove the self locking nut securing the dampener to the main transmission gear shift shaft at the main transmission end.
 - (3) Disconnect the lock nut, M10 x 70 bolt, wave washer, O-rings and spacer tube securing the main transmission gear shift shaft to the main transmission gear shift lever and remove the shift shaft. Note the position of the spacer tube, wave washer and O-rings.
 - (4) Remove the self locking nut securing the dampener to the forward/reverse shift rod at the main transmission end.
 - (5) Remove the nut and serrated washer securing the forward/reverse shift rod to the main transmission forward/reverse selector lever.
 - (6) Remove the nut and serrated washer securing the forward/reverse shift rod to the forward/reverse lever.
- m.** Drain the air from the compressed air accumulator circuit 1 (bottom tank), compressed air accumulator circuit 2 (top tank) and the compressed air accumulator trailer brake circuit.

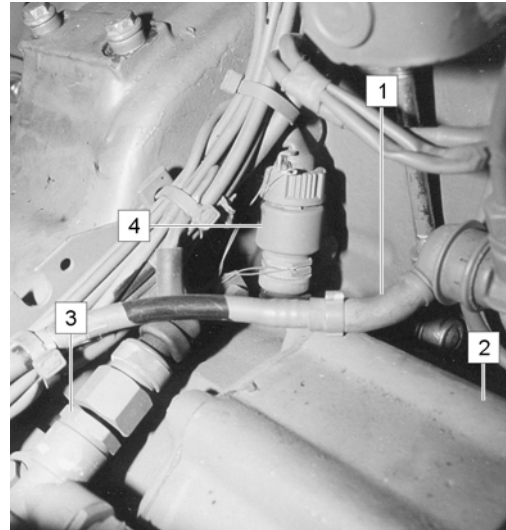
NOTE

Note the position of wiring looms and air lines and note the number and position of the cable ties, clamps and insulators that secure them, before disconnecting electrical leads and air lines. As a rule of thumb cable ties must fasten wiring looms and air lines at intervals of 500 mm but may also be fitted at shorter intervals as required.

- n.** Disconnect the electrical leads and air lines from the transmission as follows:
- (1) Cut the cable ties securing the electrical leads to the two air lines (Fig 178(3)) to the planetary gear shift cylinder control valve.
 - (2) Tag and disconnect the two air lines (Fig 178(3)) to the planetary gear shift cylinder control valve.

- (3) Tag and disconnect the air supply line to the planetary gear shift cylinder control valve at the connector immediately below the left hand air supply air manifold (Fig 178(9)).
- (4) Cut the two cable ties securing the air supply line for the planetary gear shift cylinder control valve to the left hand air supply air manifold loom.
- (5) Cut the cable ties securing the right hand fording manifold air lines, the air lines to the rear and intermediate axle brake actuator vent lines, the front axle torque tube boot breather line, the PTO air line, and the PTO electrical lead to the mounting bracket (Fig 178(5)) on the left hand rear of the main transmission.
- (6) Remove the electrical lead to the reverse light pressure switch (Fig 178(2)) and cut the cable ties securing the lead as necessary to release it to the left hand side.
- (7) Cut the cable ties securing the electrical lead from the gear shift gate indicator switch (Fig 179(2)) to the air line and disconnect the lead from the switch.

- (8) Remove the locking clip and disconnect the air vent hose (Fig 180(1)) at the base of the planetary gear shift cylinder control valve (Fig 179(3)).

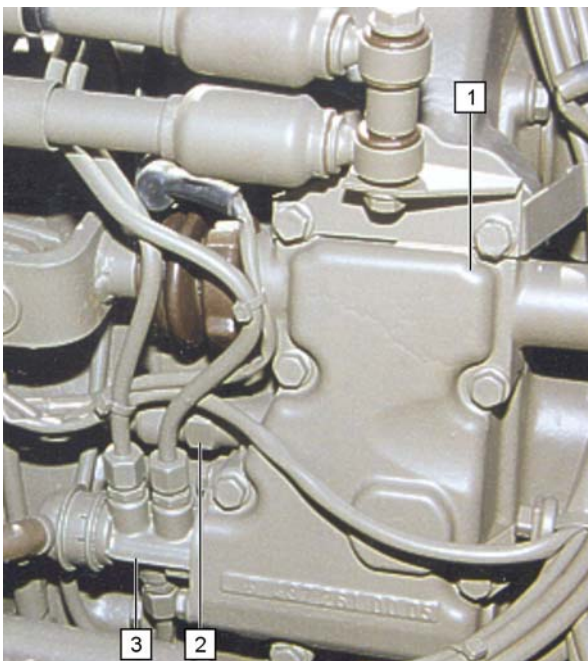


1. Air vent hose
2. Transfer case intermediate axle output housing
3. Park brake warning light pressure switch
4. Pulse generator (speedometer)

Figure 180 - Pulse Generator (Speedometer)

- (9) Cut the upper lock wire and remove the electrical lead to the pulse generator (speedometer) (Fig 180(4)) located on top of the transfer case intermediate axle output housing.
- (10) Cut the lower lock wire and unscrew the pulse generator (speedometer) (Fig 180(4)) out of the transfer case intermediate axle output housing.
- (11) Disconnect the banjo bolt (Fig 181(2)) securing the air line to the PTO shift cylinder. Discard the sealing washers.

UNCONTROLLED WHEN PRINTED



1. Gear shift mechanism housing
2. Gear shift gate indicator switch
3. Planetary gear shift cylinder control valve

Figure 179 - Gear Shift Gate Indicator Switch