GENERAL SPECIFICATIONS

MEGA 400-III PLUS		
Item		**Specification**
Standard Bucket Capacity		3.90 cu. m (5.10 cu. yd.)
Vehicle Weight		21,900.0 kg (48,281.23 lbs.)
Engine		
	Type	DE12TI
	Horsepower	260 ps @ 2,100 rpm (256.44 hp @ 2,100 RPM)
	Max. Torque	113 kg•m / 1,300 RPM (817.33 ft. lbs. @ 1,300 RPM)
Transmission		
	Full Automatic Power -Shift	Full Automatic Power Shift
	Speeds	4 Forward, 3 Reverse
Brake Systems		
	Travel Brakes	4 Wheel, Wet Disk
	Parking Brake	Drive Shaft Brake
Performance		
	Travel Speed	7.0 - 37 km/h (4.35 - 23 mph)
	Steering Angle	+ 40°
	Min. Tire Turning Radius	5,929 mm (19' - 5")
	Safe Operating Load	7,020.0 kg (15,476.45 lbs.)
	Max. Breakout Force	21,900 kg (29,101 lbs)
	Bucket Rise Time	6.1 Seconds
	Bucket Dump Time	1.3 Seconds
	Bucket Descent Time	3.4 Seconds
	Maximum Gradeability	58% (30°)

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ELECTRICAL SCHEMATIC (MEGA 400-III PLUS)

⚠ CAUTION!

Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section.

Always use tools and equipment that is in good working order.

Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

MODEL	SERIAL NUMBER RANGE
Mega 400-III PLUS	1001 and Up

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HYDRAULIC SCHEMATIC (MEGA 400-III PLUS)

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MODEL	SERIAL NUMBER RANGE
Mega 400-III PLUS	1001 and Up

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TORQUE VALUES FOR STANDARD METRIC FASTENERS

NOTE: *The units for the torque values are kg m (ft lb)*

Grade Dia. x Pitch (mm)	3.6 (4A)	4.6 (4D)	4.8 (4S)	5.6 (5D)	5.8 (5S)	6.6 (6D)	6.8 (6S)	6.9 (6G)	8.8 (8G)	10.9 (10K)	12.9 (12K)
M5 x Std.	0.15 (1.08)	0.16 (1.15)	0.25 (1.80)	0.22 (1.59)	0.31 (2.24)	0.28 (2.02)	0.43 (3.11)	0.48 (3.47)	0.50 (3.61)	0.75 (5.42)	0.90 (6.50)
M6 x Std.	0.28 (2.02)	0.30 (2.16)	0.45 (3.25)	0.40 (2.89)	0.55 (3.97)	0.47 (3.39)	0.77 (5.56)	0.85 (6.14)	0.90 (6.50)	1.25 (9.04)	1.50 (10.84)
M7 x Std.	0.43 (3.11)	0.46 (3.32)	0.70 (5.06)	0.63 (4.55)	0.83 (6.00)	0.78 (5.64)	1.20 (8.67)	1.30 (9.40)	1.40 (10.12)	1.95 (14.10)	2.35 (16.99)
M8 x Std.	0.70 (5.06)	0.75 (5.42)	1.10 (7.95)	1.00 (7.23)	1.40 (10.12)	1.25 (9.04)	1.90 (13.74)	2.10 (15.18)	2.20 (15.91)	3.10 (22.42)	3.80 (27.48)
M8 x 1	0.73 (5.28)	0.80 (5.78)	1.20 (8.67)	1.00 (7.23)	1.50 (10.84)	1.35 (9.76)	2.10 (15.18)	2.30 (16.63)	2.40 (17.35)	3.35 (24.23)	4.10 (29.65)
M10 x Std.	1.35 (9.76)	1.40 (10.12)	2.20 (15.91)	1.90 (13.74)	2.70 (19.52)	2.35 (19.99)	3.70 (26.76)	4.20 (30.37)	4.40 (31.18)	6.20 (44.84)	7.20 (52.07)
M10 x 1	1.50 (10.84)	1.60 (11.57)	2.50 (18.08)	2.10 (15.18)	3.10 (22.42)	2.80 (20.25)	4.30 (31.10)	4.90 (35.44)	5.00 (36.16)	7.00 (50.63)	8.40 (60.75)
M12 x Std.	2.40 (17.35)	2.50 (18.08)	3.70 (26.76)	3.30 (23.86)	4.70 (33.99)	4.20 (30.37)	6.30 (45.56)	7.20 (52.07)	7.50 (54.24)	10.50 (75.94)	12.50 (90.41)
M12 x 1.5	2.55 (18.44)	2.70 (19.52)	4.00 (28.93)	3.50 (25.31)	5.00 (36.16)	4.50 (32.54)	6.80 (49.18)	7.70 (55.69)	8.00 (57.86)	11.20 (81.00)	13.40 (96.92)
M14 x Std.	3.70 (26.76)	3.90 (28.20)	6.00 (13.23)	5.20 (37.61)	7.50 (54.24)	7.00 (50.63)	10.00 (72.33)	11.50 (83.17)	12.00 (86.79)	17.00 (122.96)	20.00 (144.66)
M14 x 1.5	4.10 (29.65)	4.30 (31.10)	6.60 (47.73)	5.70 (41.22)	8.30 (60.03)	7.50 (54.24)	11.10 (80.28)	12.50 (90.41)	13.00 (94.02)	18.50 (11.26)	22.00 (158.12)
M16 x Std.	5.60 (40.50)	6.00 (43.39)	9.00 (65.09)	8.00 (57.86)	11.50 (83.17)	10.50 (75.94)	15.50 (112.11)	17.90 (129.47)	18.50 (133.81)	26.00 (188.05)	31.00 (224.22)
M16 x 1.5	6.20 (44.84)	6.50 (47.01)	9.70 (70.16)	8.60 (62.20)	12.50 (90.41)	11.30 (81.73)	17.00 (122.96)	19.50 (141.04)	20.00 (144.66)	28.00 (202.52)	35.50 (256.77)
M18 x Std.	7.80 (56.41)	8.30 (60.03)	12.50 (90.41)	11.00 (79.56)	16.00 (115.72)	14.50 (104.87)	21.00 (151.89)	27.50 (198.90)	28.50 (206.14)	41.00 (296.55)	43.00 (311.01)
M18 x 1.5	9.10 (65.82)	9.50 (68.71)	14.40 (104.15)	12.50 (90.41)	18.50 (133.81)	16.70 (120.79)	24.50 (177.20)	27.50 (198.90)	28.50 (206.14)	41.00 (296.55)	49.00 (354.41)
M20 x Std.	11.50 (83.17)	12.00 (86.79)	18.00 (130.19)	16.00 (115.72)	22.00 (159.12)	19.00 (137.42)	31.50 (227.83)	35.00 (253.15)	36.00 (260.38)	51.00 (368.88)	60.00 (433.98)
M20 x 1.5	12.80 (92.58)	13.50 (97.64)	20.50 (148.27)	18.00 (130.19)	25.00 (180.82)	22.50 (162.74)	35.00 (253.15)	39.50 (285.70)	41.00 (296.55)	58.00 (419.51)	68.00 (491.84)
M22 x Std.	15.50 (112.11)	16.00 (115.72)	24.50 (177.20)	21.00 (151.89)	30.00 (216.99)	26.00 (188.05)	42.00 (303.78)	46.00 (332.71)	49.00 (354.41)	67.00 (484.61)	75.00 (542.47)
M22 x 1.5	17.00 (122.96)	18.50 (133.81)	28.00 (202.52)	24.00 (173.59)	34.00 (245.92)	29.00 (209.75)	47.00 (339.95)	52.00 (44.76)	56.00 (405.04)	75.00 (542.47)	85.00 (614.80)
M24 x Std.	20.50 (148.27)	21.50 (155.50)	33.00 (238.68)	27.00 (195.29)	40.00 (289.32)	34.00 (245.92)	55.00 (397.81)	58.00 (419.51)	63.00 (455.67)	82.00 (593.10)	92.00 (655.43)
M24 x 1.5	23.00 (166.35)	35.00 (253.15)	37.00 (267.62)	31.00 (224.22)	45.00 (325.48)	38.00 (202.52)	61.00 (441.21)	67.00 (484.61)	74.00 (535.24)	93.00 (672.66)	103.00 (744.99)

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TRANSMISSION FAULTS CODES

The transmission has a monitoring system that indicates when a malfunction is occurring.

FAULT DISPLAY

If a fault is detected, the display shows a spanner symbol (g) for a fault. The display shows the fault code, if the gear selector is on neutral.

If more than one fault is detected, each fault code is shown for about 1 second.

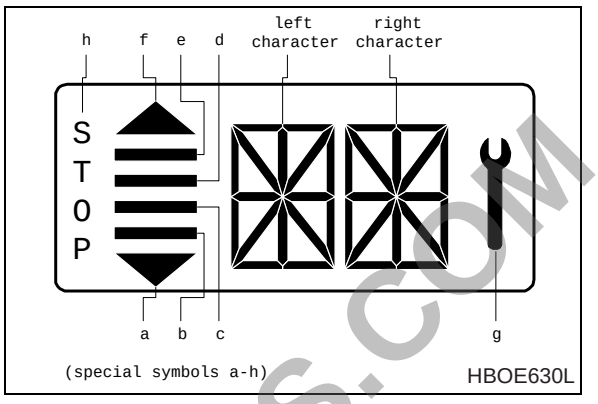


Figure 2

CAN - MESSAGE:

The TCU sends the fault code of a detected fault in the specified CAN - message, while the fault is active.

If more than one fault is detected, the fault code scrolls.

DESCRIPTION OF FAULT CODES

First Number	Meaning of Number
1 Hex	Digital Input Signal
2 Hex	Analog Input Signal
3 Hex	Speed Signal
4 Hex	Can Signal Error
5 Hex	Can Signal Error
6 Hex	Can Signal Error
7 Hex	Analog Current Output Signal
8 Hex	Analog Current Output Signal
9 Hex	Digital Output Signal
A Hex	Digital Output Signal
B Hex	Transmission Fault, Clutch Error
C Hex	Logical Fault
D Hex	Power Supply
E Hex	High Speed Signal
F Hex	General Fault

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GENERAL MAINTENANCE PROCEDURES

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MODEL	SERIAL NUMBER RANGE
ALL MODELS	ALL RANGES

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TROUBLESHOOTING

Refrigerant Pressure Check

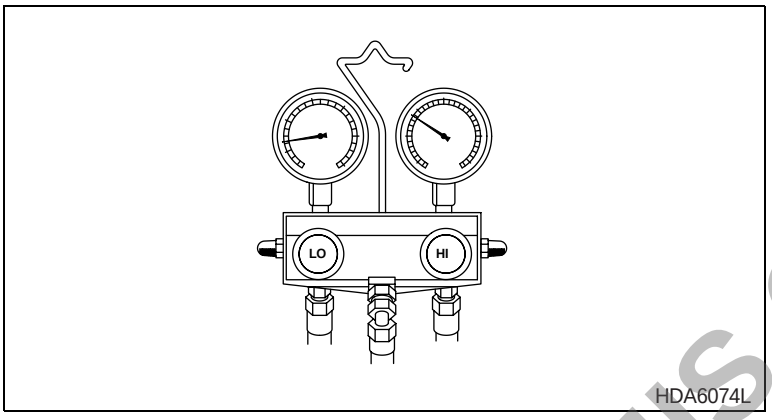


Figure 3

1. Open all doors and windows.
2. Install manifold gauge set.
3. Start engine and maintain engine speed at 1,800 - 2,000 RPM.
4. Check high / low pressure of refrigerant.

1	**High Pressure: 8.0 - 10.0 kg/cm^2 (114 - 142 psi)** **Low Pressure: Approximately 1.0 kg/cm^2 (14 psi)**		
Possible Cause: Low Refrigerant Level			
Step	**Inspection Item**		**Remedy**
1	Check for traces of refrigerant oil.	Yes	Reassemble using correct tightening torque.
		No	Go to next step.
2	Using a leak detection device or soapy water check for refrigerant leakage at all major components and joints.	Yes	Repair leaking component.
		No	Recharge system to correct pressure.

2	**High Pressure: Over 23 kg/cm^2 (327 psi)** **Low Pressure: Approximately 2.5 - 3.0 kg/cm^2 (35.56 - 42.67 psi)**		
Possible Cause: Overcharge, Frost on condenser			
Step	**Inspection Item**		**Remedy**
1	Check for condenser pin damage or contamination.	Yes	Clean, repair or replace condenser.
		No	Refrigerant overcharge.

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COMPONENT LOCATIONS

Figure 1 identifies the location of major machine components.

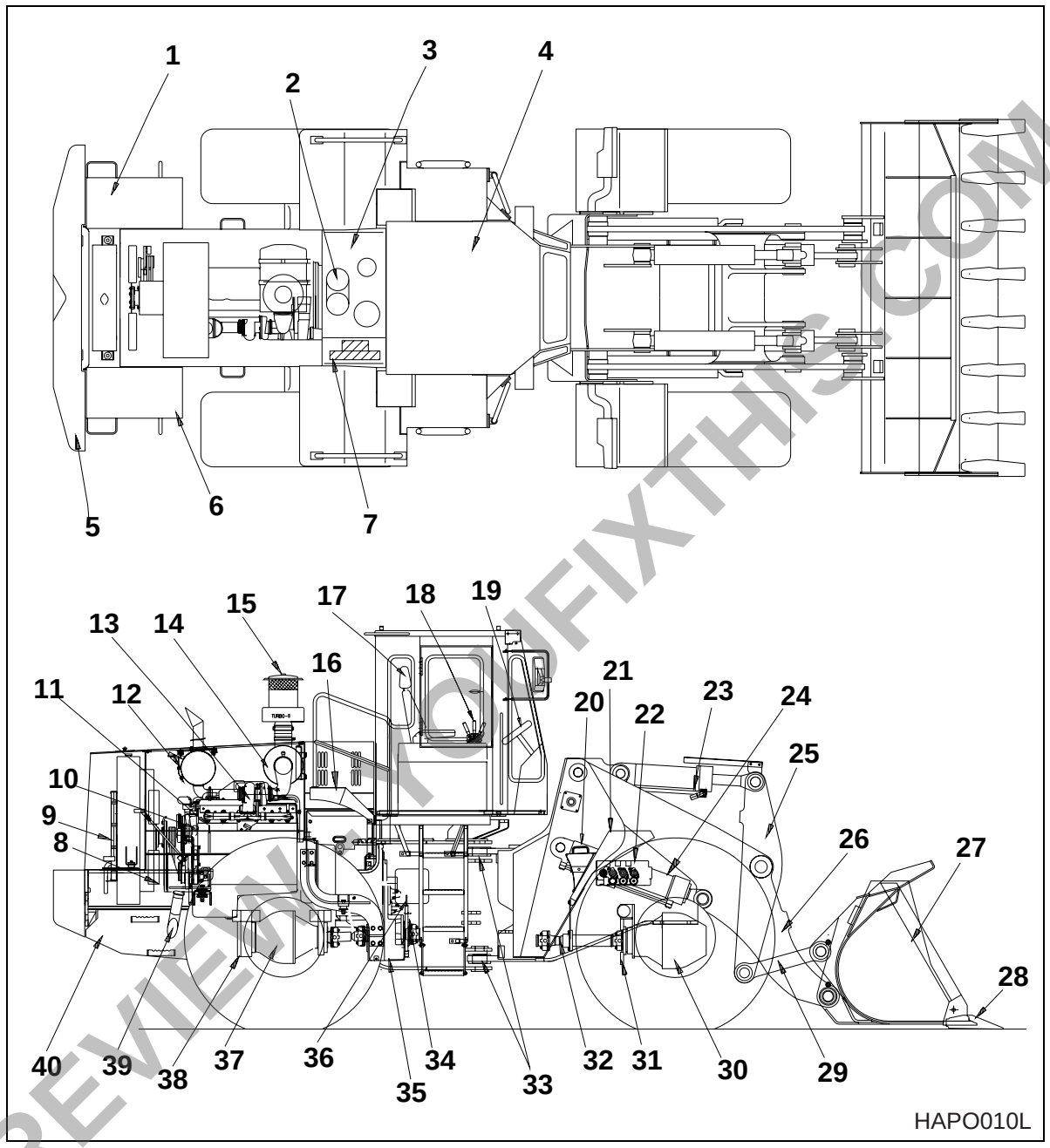


Figure 1

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WHEEL LOADER SAFETY

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Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

MODEL	SERIAL NUMBER RANGE
Mega 200-III	1001 and Up
Mega 250-III	1001 and Up
Mega 400-III PLUS	1001 and Up

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TO THE OPERATOR OF A DAEWOO WHEEL LOADER

DANGER!

Improper use of wheel loader could cause serious injury or death. Before operating wheel loader, or performing maintenance, operator or technician must read and understand entire Operation and Maintenance Manual.

Any operation, maintenance, traveling or shipping methods that do not follow safety guidelines printed in this Manual could cause serious injury or death.

Please respect the importance of taking responsibility for your own safety, and that other people who may be affected by your actions.

Safety information on the following pages is organized into the following topics.

1. “General Safety Essentials” on page 4
2. “Location of Safety Labels” on page 4
3. “Unauthorized Modifications” on page 4
4. “Operation” on page 7
5. “Equipment” on page 12
6. “Maintenance” on page 16
7. “Shipping and Transportation” on page 19

SAFETY ALERT SYMBOL

Be Prepared – Get to Know All Operating and Safety Instructions

This is the Safety Alert Symbol. Wherever it appears – in this manual or on safety signs on the machine – you should be alert to potential for personal injury or accidents. Always observe safety precautions and follow recommended procedures.

LEARN SIGNAL WORDS USED WITH SAFETY ALERT SYMBOL

Words “**CAUTION**,” “**WARNING**,” and “**DANGER**” used throughout this manual and on labels on machine indicate hazards or unsafe practices. All three statements indicate that safety is involved. Observe precautions indicated whenever you see the Safety Alert “Triangle,” no matter which signal word appears next to the “Exclamation Point” symbol.

CAUTION!

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. It may also be used to alert against a generally unsafe practice.

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Category	Dimension
Overall Length (A)	8,425 mm (27' - 8")
Overall Width, without bucket (B)	2,985 mm (9' - 10")
Overall Height (C)	3,566 mm (11' - 8")
Bucket Width (D)	3,280 mm (10' - 9")
Wheel Base (E)	3,500 mm (11' - 6")
Tread (F)	2,300 mm (7' - 7")
Ground Clearance (G)	500 mm (1' - 8")
Dump Height, to tooth (H)	3,022 mm (9' - 11")
Dump Distance, to Bucket Edge (I)	1,195 mm (3' - 11")
Dump Height to Bucket Pivot	3,886 mm (12' - 9")
Bucket Angle, Raised (a)	47°
Bucket Angle (b), Lowered (at carry)	42°
Tire Size	26.5-25-20 PR(L3)

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FRONT AXLE (GRAZIANO)

⚠ CAUTION!
Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section. **Always use tools and equipment that is in good working order.** **Use lifting and hoisting equipment capable of safely handling load.** **Remember, that ultimately safety is your own personal responsibility.**

MODEL	SERIAL NUMBER RANGE
Mega 400-III	0001 and Up
Mega 400-III PLUS	1001 and Up

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Decrease Pinion Distance

Drive Side

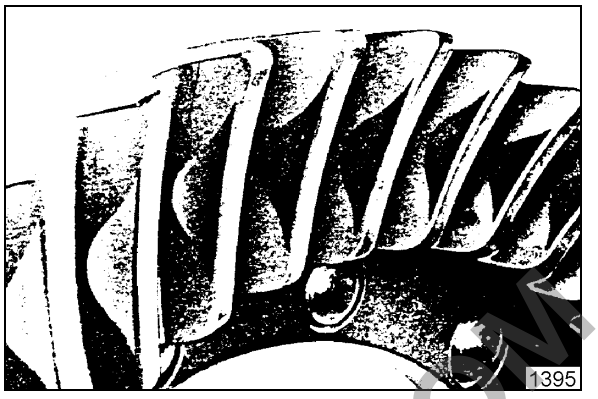


Figure 26

Neutral Side

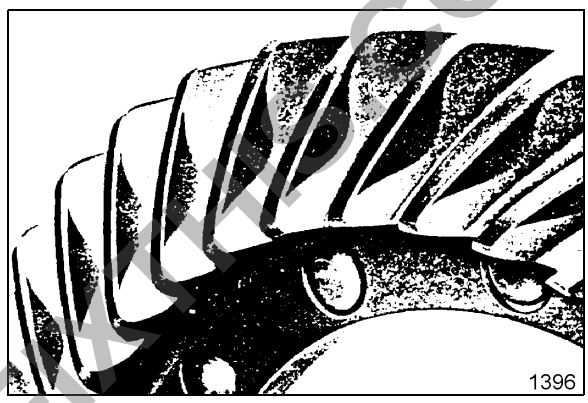


Figure 27

NOTE: *When adjusting bevel gear, do not change pre-load of bearing. Adjust by rotating both ring nuts the same number of notches.*

2. Fit spring pins (2) to lock differential ring nuts.
3. Make two lock notches on pinion nut collar (6).

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NOTE: *To facilitate proper pre-load computation, it is advisable to mount as many shims as required to warrant a pinion end play and not a pre-load (that could be excessive) on bearings.*

4. Fit drive flange (9) on pinion (7), position specific reaction tool and tighten nut (6). Remove reaction tool.

   NOTE: *Torque from 57 - 63 Nm (5.81 - 6.42 kgm / 42 - 46 ft lb).*

5. Check pinion end play by means of a dial gauge, then disassemble and change shims to eliminate all end play and reach intended pre-load.

6. Reassembly components, check that proper pre-load of bearing corresponding to a revolving torque (no seal installed).

   NOTE: *Revolving torque of 0.20 - 0.40 Nm (0.02 - 0.04 kgm / 0.15 - 0.30 ft lb).*

7. As the prescribed pre-load of bearings has been reached, remove drive flange (9) and fit lip seal (10) into its proper seat.

8. Remount drive flange (9) and tighten to specified torque.

   NOTE: *Torque from 57 - 63 Nm (5.81 - 6.42 kgm / 42 - 46 ft lb).*

9. Position differential assembly with ring gear on support (11), insert ring nut (3), and temporarily adjust back lash.

10. Mount caps (4), being careful not to invert position, secure support to differential with screws (5).

    NOTE: *Torque to 65 ± 3.25 Nm (6.63 ± 0.33 kgm / 47.94 ± 2.40 ft lb).*

11. Check differential end play with a dial gauge.

12. Screw in a ring nut to have a notch aligned against slot of lockplate, and actuate opposite nut up to eliminate end play.

    NOTE: *When end play is eliminated, set bearing preload by screwing in ring nut one more notch.*

ADJUSTING BACKLASH

1. Position a dial gauge perpendicular to ring gear (26) tooth, with pinion steady check backlash.
   - Standard backlash of bevel gear set: 0.15 - 0.20 mm (0.0059 - 0.0079")
   - To obtain backlash within specified range, rotate both ring nuts (3), displacing them same number of notches.
   - Moving toward ring gear to pinion, if backlash is too LARGE.
   - Moving away ring gear to pinion, if backlash is too SMALL.

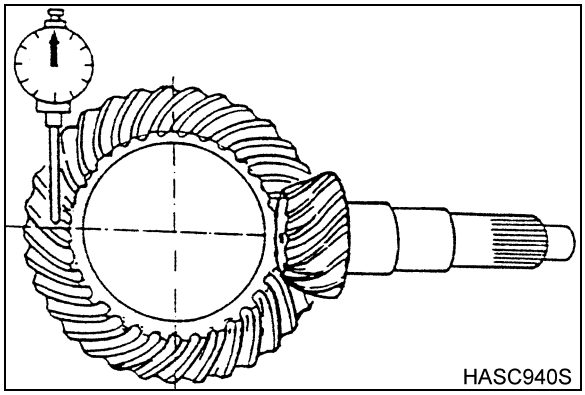


Figure 19

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Table of Fault Codes					
Fault Code (Hex)	**Int. Code (Dec)**	**Meaning of Fault Code (• Reason for Fault Detection)**	**Reaction of TCU**	**Possible Steps to Repair**	**Remarks**
26		S.C. to ground at temperature sensor input. The measured voltage is too low: • Cable is defective and is contacted to vehicle ground. • Temperature sensor has an internal defect. • Connector pin is contacted to vehicle ground.	No reaction, TCU uses default temperature. OP-Mode: normal.	Check cable from TCU to sensor. Check connectors. Check temperature sensor.	
31		S.C. to battery voltage or O.C. at engine speed input. TCU measures a voltage higher than 7.00 V at speed input pin. • Cable is defective and is contacted to battery voltage. • Cable has no connection to TCU. • Speed sensor has an internal defect. • Connector pin is contacted to battery voltage or has no contact.	OP-Mode: substitute clutch control.	Check cable from TCU to sensor. Check connectors. Check speed sensor.	
32		S.C. to ground at engine speed input. TCU measures a voltage less than 0.45V at speed input pin. • Cable / connector is defective and is contacted to vehicle ground. • Speed sensor has an internal defect.	OP-Mode: substitute clutch control.	Check cable from TCU to sensor. Check connectors. Check speed sensor.	

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8. Disassemble opposite cover.
9. Disconnect pressure regulator and remove cable harness.

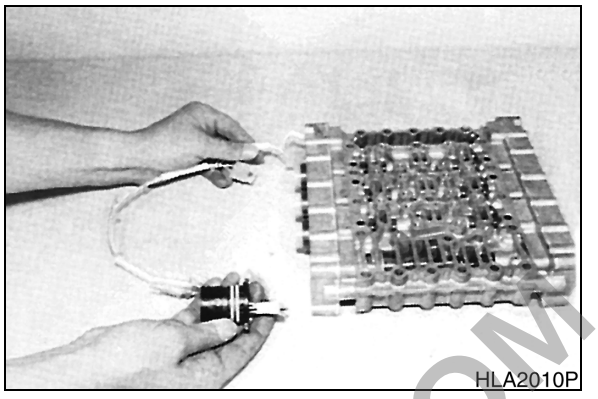


Figure 9

10. Loosen socket head screws, remove fixing plate and pressure regulators (3x).

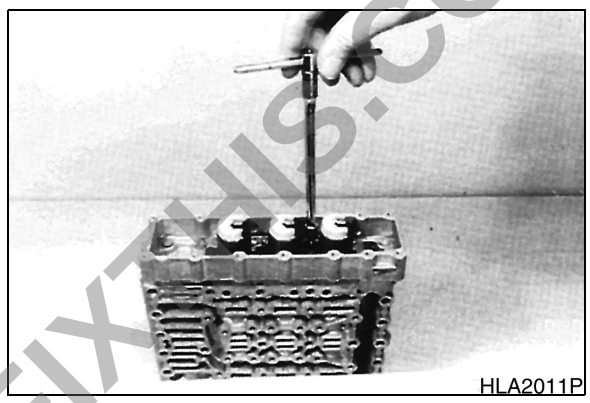


Figure 10

11. Loosen two socket head screws and locate housing provisionally, using adjusting screws. (Housing is under spring preload). Now, loosen remaining socket and screws.

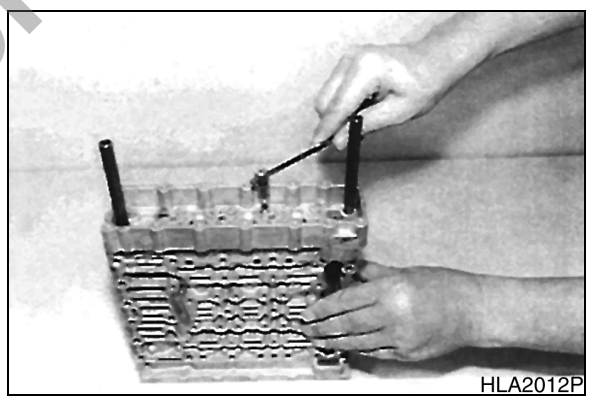


Figure 11

12. Separate housing from valve housing by loosening adjusting screws uniformly.

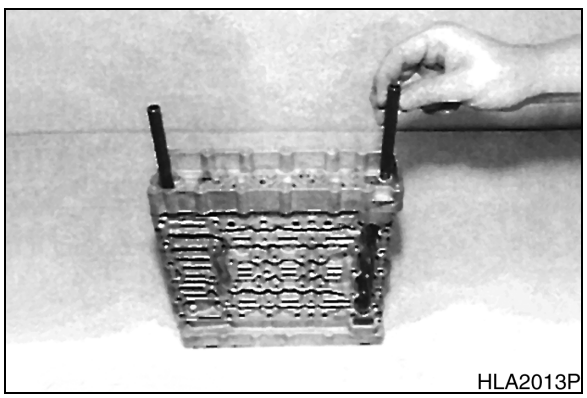


Figure 12

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3. Tilt clutch into horizontal position and install spur gear K3 until all inner plates are accommodated.

   NOTE: *This step will facilitate later spur gear installation. Now, tilt clutch again into vertical position and pull spur gear carefully out of plate pack.*

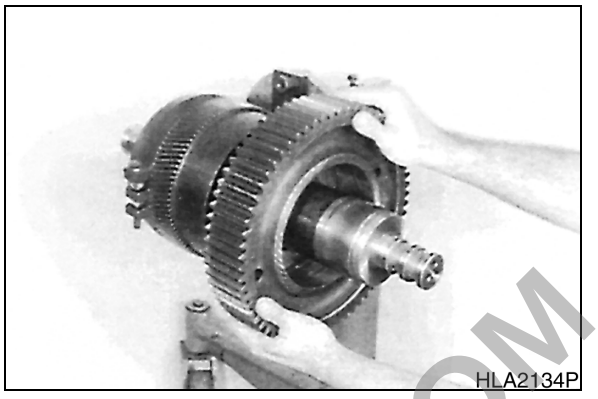


Figure 133

4. Insert split ring (Figure 134) with grease into recess.

   NOTE: *Pay attention to exact contact of split ring in bottom of recess.*

   NOTE: *Carry out following steps of Figure 135 and Figure 136 immediately in chronological order to prevent a cooling down of heated components.*

5. Heat bearing bore of spur gear (Figure 135) as well as inner bearing race of roller bearing (Figure 136) to about 120°C.

6. Install heated spur gear until all inner plates are accommodated.

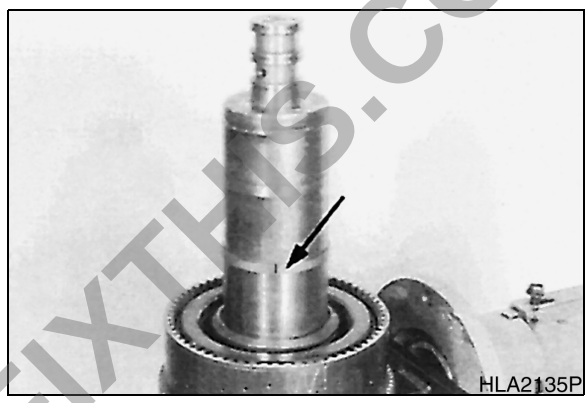


Figure 134

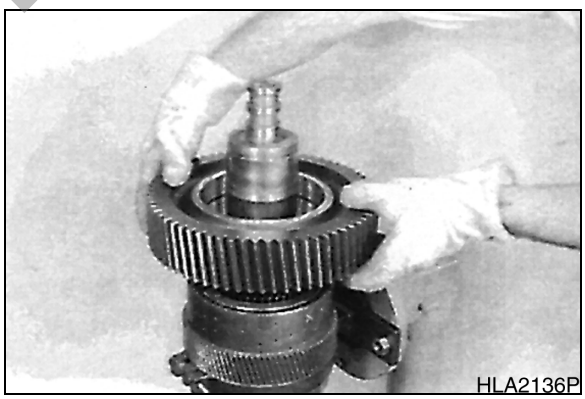


Figure 135

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C. Measure Dimension II from mounting face of cover (Figure 247) to contact face/outer bearing race.

NOTE: *Dimension II e.g. 63.90 mm.*

EXAMPLE G:

Dimension I	64.95 mm
Dimension II	- 63.90 mm
Difference	1,05 mm
Required Bearing Preload (0.15 - 0.20) e.g.	+ 0.15 mm
Result = Shim S	= 1.20 mm

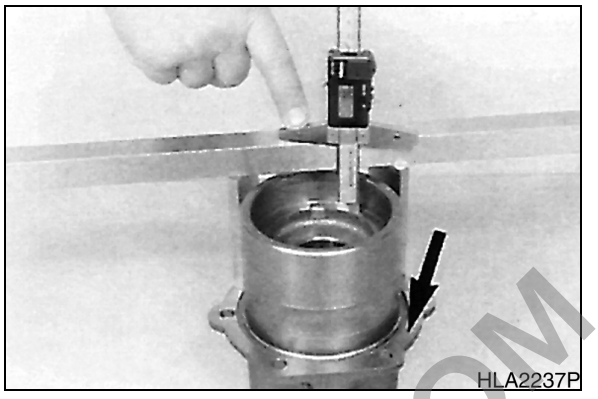


Figure 247

39. Install shim (e.g s= 1.20 mm) cool down outer bearing race and insert it until contact is obtained. Insert O-ring into annular groove (Figure 248) and grease it.

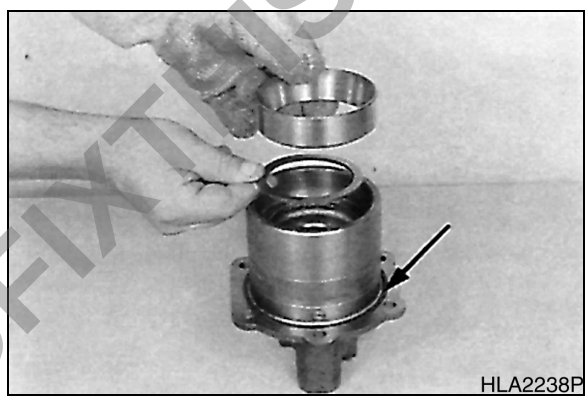


Figure 248

40. Squeeze rectangular rings (3 pieces) into annular grooves of clutch shaft (Figure 249) and engage them. Now, grease rectangular rings and align them centrically.

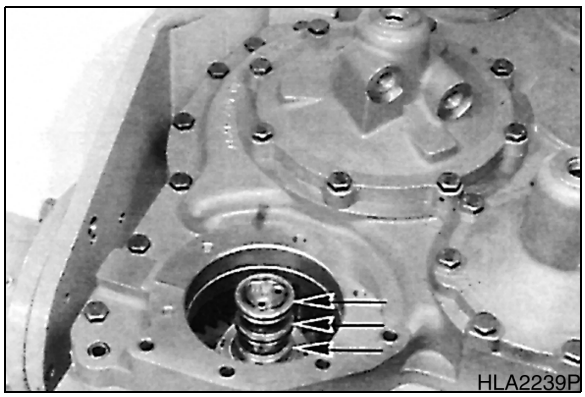


Figure 249

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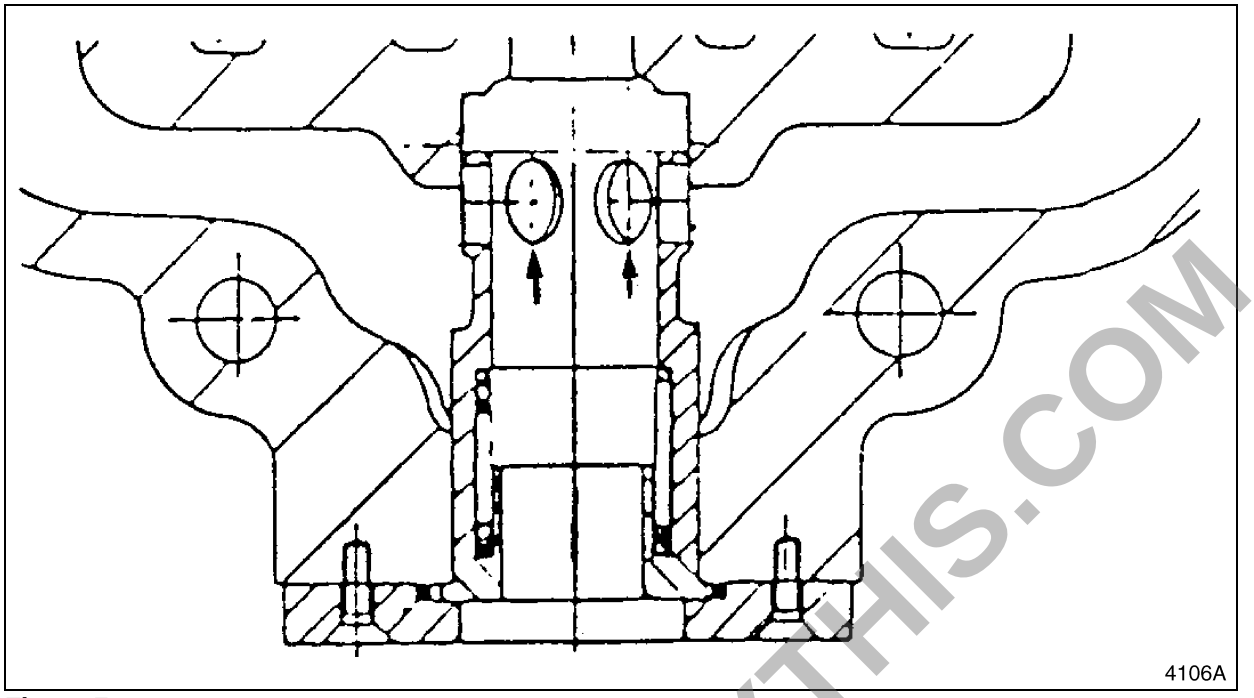


Figure 7

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MAIN PUMP (VICKERS 35VQ SERIES)

⚠ CAUTION!
Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section. **Always use tools and equipment that is in good working order.** **Use lifting and hoisting equipment capable of safely handling load.** **Remember, that ultimately safety is your own personal responsibility.**

MODEL	SERIAL NUMBER RANGE
Mega 400-III PLUS	1001 and Up

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REPLACEMENT PARTS

1. Reliable operation throughout specified operating range is assured only if genuine Vickers parts are used (available through your Daewoo distributor). Sophisticated design process and material are used in the manufacture of these parts.

   NOTE: *Substitute replacement parts may result in early failure of pump assembly.*

2. Commonly replaced parts are usually provided in the form of repair kits available through your Daewoo distributor. It is strongly recommended to use repair kits when a pump is overhauled.

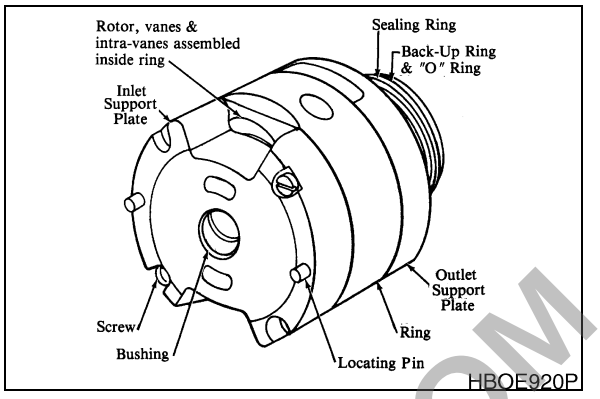


Figure 4 PREASSEMBLED CARTRIDGE KIT

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B. Unscrew throttle check valve in PP-connection with 6 mm hexagon key.

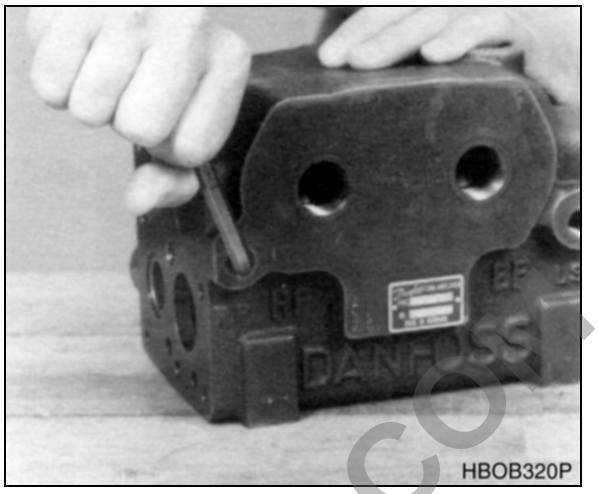


Figure 32

C. Unscrew orifice in housing with 4 mm hexagon key.

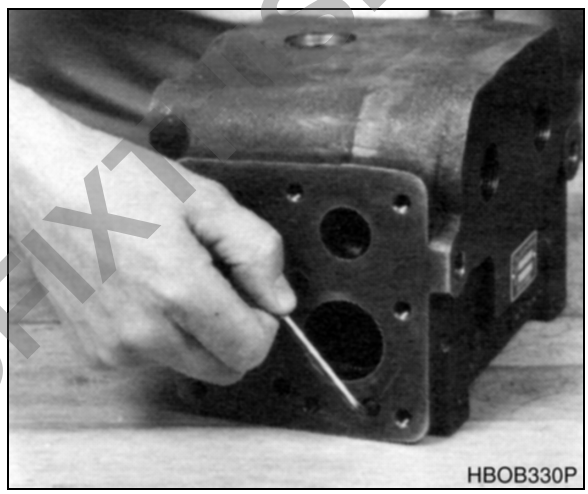


Figure 33

8. Removing shock valves.

   A. Remove shock valve with screwdriver and hexagon key.

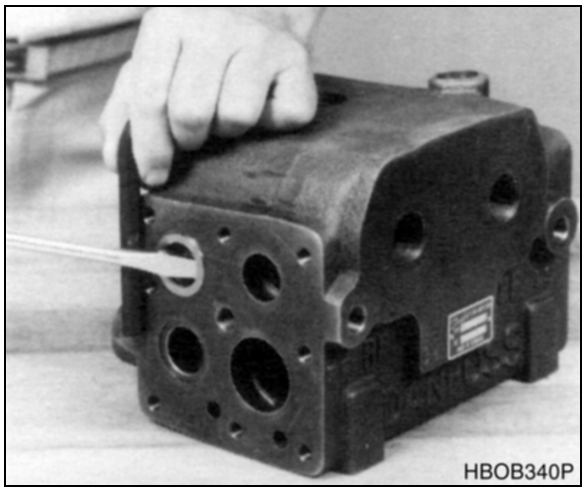


Figure 34

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Neutral Operation

With the steering wheel in the neutral position (wheels turned neither right nor left), the spool (2, Figure 3) and sleeve (1) are stationary at the position where the center pin (6) becomes centered in the spool space by the centering springs (3). Oil flow through the load sensing line (LS), port L, port R, and port T are bypassed to the tank line and the oil supply (P) is blocked by the directional spool in the steering unit (1, Figure 2). Even if an external force is applied to the steering cylinder, the steering unit is protected because the oil path is blocked by the directional spool.

Reference Number	Description
1	Sleeve
2	Spool
3	Centering Spring
4	Spool
5	Sleeve
6	Center Pin
7	Drive shaft

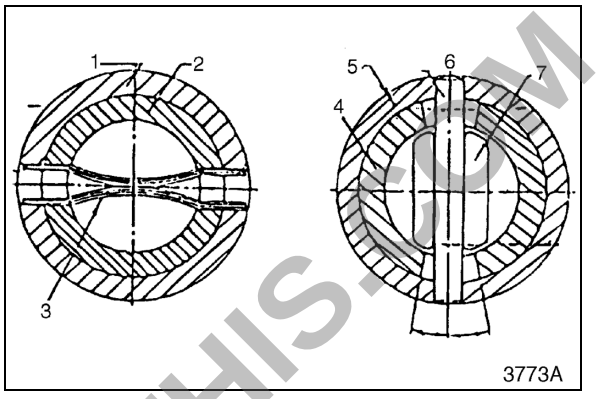


Figure 3

Right Turn

The spool (2, Figure 3) is engaged with the spline of the steering shaft. When the steering wheel is turned to the right, the spool turns. The sleeve (1) is connected to the spool (2) by centering springs (3). When spool turns, the sleeve turns. The sleeve turning angle is about 10^{o} less than the spool turning angle. This allows the longitudinal slots in the spool to align with the ports in the sleeve. Oil from port P on the steering unit (1, Figure 2) travels through the control spool and is directed to port R which directs the oil to the steering cylinders (3, Figure 2). The amount of flow metered to port R is controlled by the amount of steering wheel rotation. Excess oil flow through port P that is not metered to port R, is directed by the spool to port T and is then directed through the il cooler and into the tank.

Left Turn

The spool (2, Figure 3) is engaged with the spline of the steering shaft. When the steering wheel is connected to the spool (2) by centering springs (3). When the spool turns, the sleeve turns. The sleeve turning angle is about 10^{o} less than the spool turning angle. This allows the longitudinal slots in the spool to align with the ports in the sleeve. When the steering wheel is turned to the left, oil from port P on the steering unit (1, Figure 2) is directed through the control spool in the steering unit, out port L and into the steering cylinders (3, Figure 2). The amount of oil flow metered to port L is controlled by the amount of steering wheel rotation. Excess oil flow through port P that is not metered to port L, is directed by the spool to port T and is then directed through the oil cooler and into the tank.

GEROTOR OPERATION

If the engine or pump is not operating, the steering unit (1, Figure 2) works as a manual pump when the steering wheel is turned. The gerotor will work when the input torque to the steering wheel is less than 12 kg•m (87 ft. lbs.). If the necessary input torque is greater than this, the gerotor will not function. When the steering wheel is turned, the gerotor creates a vacuum that draws oil from port T. See Figure 2. The gerotor pumps this oil through the control spool and into the steering cylinders. Return oil flows back to the spool and is used to lubricate the steering unit (1, Figure 2). The return oil then flows back into the tank line and is recirculated back to the gerotor and the steering cylinders.

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ELECTRICAL SYSTEM

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