

**W270B Wheel Loader
Service Manual
87661531**

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TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS

Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
37 Degree Flare Fitting			
1/4 inch 6.4 mm	7/16-20	72 to 144	8 to 16
5/16 inch 7.9 mm	1/2-20	96 to 192	11 to 22
3/8 inch 9.5 mm	9/16-18	120 to 300	14 to 34
1/2 inch 12.7 mm	3/4-16	180 to 504	20 to 57
5/8 inch 15.9 mm	7/8-14	300 to 696	34 to 79
Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
3/4 inch 19.0 mm	1-1/16-12	40 to 80	54 to 108
7/8 inch 22.2 mm	1-3/16-12	60 to 100	81 to 135
1.0 inch 25.4 mm	1-5/16-12	75 to 117	102 to 158
1-1/4 inch 31.8 mm	1-5/8-12	125 to 165	169 to 223
1-1/2 inch 38.1 mm	1-7/8-12	210 to 250	285 to 338

Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
Straight Threads with O-ring			
1/4 inch 6.4 mm	7/16-20	144 to 228	16 to 26
5/16 inch 7.9 mm	1/2-20	192 to 300	22 to 34
3/8 inch 9.5 mm	9/16-18	300 to 480	34 to 54
1/2 inch 12.7 mm	3/4-16	540 to 804	57 to 91
Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
5/8 inch 15.9 mm	7/8-14	58 to 92	79 to 124
3/4 inch 19.0 mm	1-1/16-12	80 to 128	108 to 174
7/8 inch 22.2 mm	1-3/16-12	100 to 160	136 to 216
1.0 inch 25.4 mm	1-5/16-12	117 to 187	159 to 253
1-1/4 inch 31.8 mm	1-5/8-12	165 to 264	224 to 357
1-1/2 inch 38.1 mm	1-7/8-12	250 to 400	339 to 542

Tube OD Hose ID	Thread Size	Pound- Inches	Newton metres
37 Degree Flare Fitting			
1/4 inch 6.4 mm	7/16-20	72 to 144	8 to 16
5/16 inch 7.9 mm	1/2-20	96 to 192	11 to 22
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1-1/4 inch 31.8 mm	1-5/8-12	165 to 264	224 to 357
1-1/2 inch 38.1 mm	1-7/8-12	250 to 400	339 to 542

Split Flange Mounting Bolts		
Size	Pound- Inches	Newton metres
5/16-18	180 to 240	20 to 27
3/8-16	240 to 300	27 to 34
7/16-14	420 to 540	47 to 61
Size	Pound- Feet	Newton metres
1/2-13	55 to 65	74 to 88
5/8-11	140 to 150	190 to 203

Split Flange Mounting Bolts		
Size	Pound- Inches	Newton metres
5/16-18	180 to 240	20 to 27
3/8-16	240 to 300	27 to 34
7/16-14	420 to 540	47 to 61
Size	Pound- Feet	Newton metres
1/2-13	55 to 65	74 to 88
5/8-11	140 to 150	190 to 203

Section 1003

1003

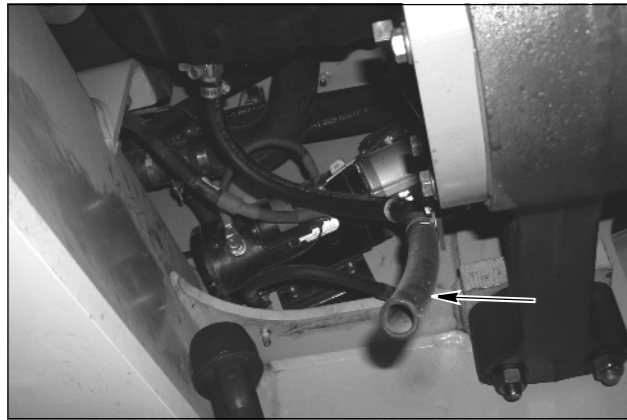
METRIC CONVERSION CHART

Section 1003

1003

METRIC CONVERSION CHART

STEP 5



W270-1R010

Place a container of appropriate capacity under the machine in correspondence with the radiator draining pipe. Open the valve and drain the coolant into the container. To facilitate the draining of the coolant loosen the filler cap.

STEP 6



W270-1R011

Place a container of about 45 litres - 12 US Gal under the transmission oil draining and drain it by loosening the securing screws (q.ty 2) indicated in the figure holding the oil filler plug.

STEP 7



W270-1R012

Sling and hold the left rear mudguard complete with handrail and remove it from the machine by removing the securing screws (q.ty 6). Replicate the operation on the right rear mudguard.

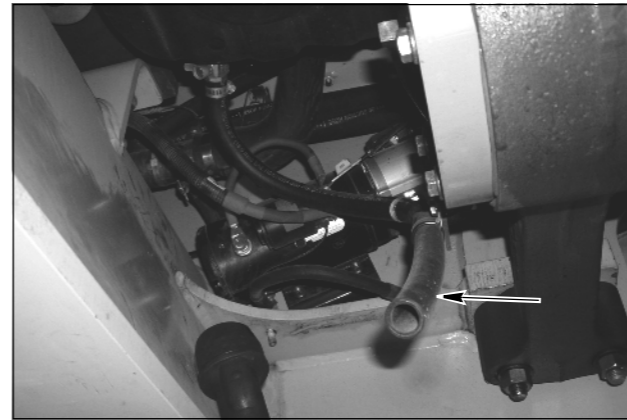
STEP 8



W270-1R013

Also, sling and hold the cab left side ladder, then remove it from the machine removing the relevant screws (q.ty 6). Replicate the operation on the right ladder.

STEP 5



W270-1R010

Place a container of appropriate capacity under the machine in correspondence with the radiator draining pipe. Open the valve and drain the coolant into the container. To facilitate the draining of the coolant loosen the filler cap.

STEP 6



W270-1R011

Place a container of about 45 litres - 12 US Gal under the transmission oil draining and drain it by loosening the securing screws (q.ty 2) indicated in the figure holding the oil filler plug.

STEP 7



W270-1R012

Sling and hold the left rear mudguard complete with handrail and remove it from the machine by removing the securing screws (q.ty 6). Replicate the operation on the right rear mudguard.

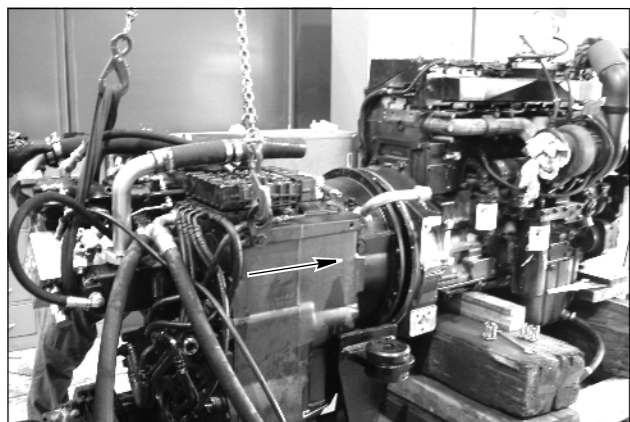
STEP 8



W270-1R013

Also, sling and hold the cab left side ladder, then remove it from the machine removing the relevant screws (q.ty 6). Replicate the operation on the right ladder.

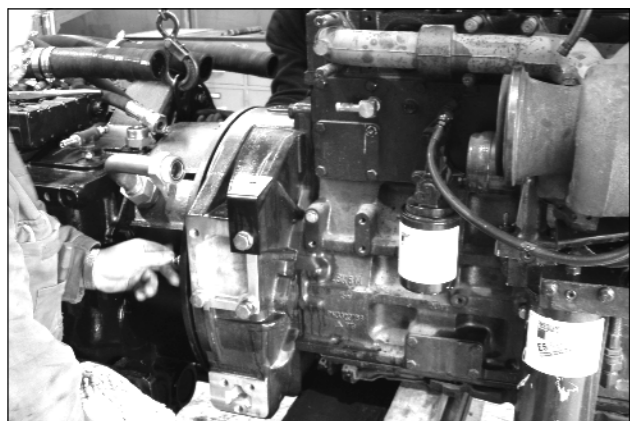
STEP 57



W270-1R060

Using the adjustable chains installed on the transmission group, proceed with the coupling with the engine group. Pay special attention, during the lifting of the transmission group, to the perfect balancing and alignment with the engine group.

STEP 58



W270-1R061

Insert, at first, two or three outer screws, without tightening them, to try aligning perfectly the transmission group with the engine group. Then insert all the outer screws (q.ty 12) tightening them to a torque of 48 lb-ft (65 Nm).

STEP 59



W270-1R062

From the side right opening located on the transmission converter cover, insert, without tightening them, all the inner screws (q.ty 12) turning progressively the engine crankshaft. For this operation, remove two screws from the vibration dumper, insert on the vibration dumper the tool indicated on the page 25, with the two screws removed, and then turn slowly the crankshaft by means of a lever.

Tighten all the screws to a torque of 40 lb-ft (55 Nm).

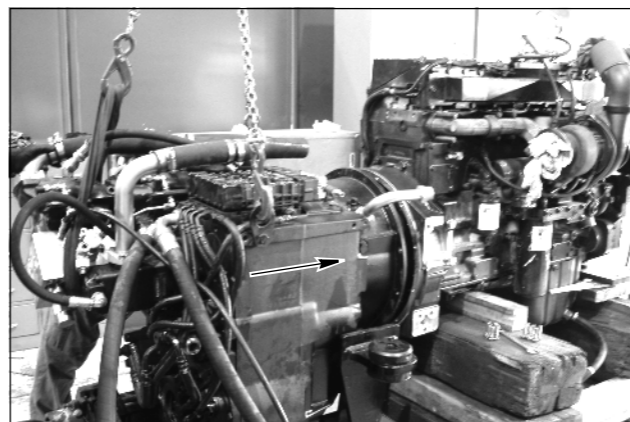
STEP 60



W270-1R063

Insert the closing panel on the access opening of the inner screws applying first some sealant along the perimeter of the panel. Secure it using screws (1, q.ty 4).

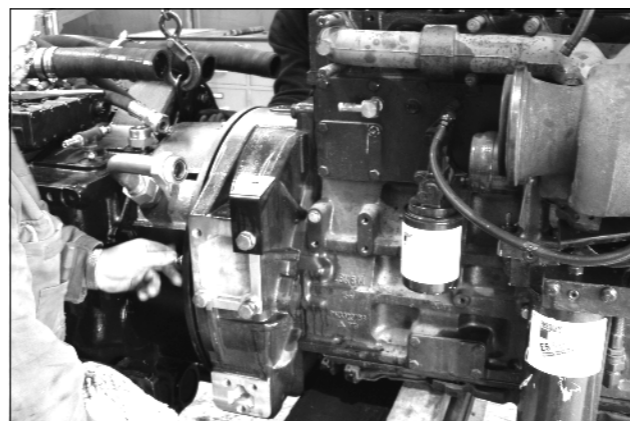
STEP 57



W270-1R060

Using the adjustable chains installed on the transmission group, proceed with the coupling with the engine group. Pay special attention, during the lifting of the transmission group, to the perfect balancing and alignment with the engine group.

STEP 58



W270-1R061

Insert, at first, two or three outer screws, without tightening them, to try aligning perfectly the transmission group with the engine group. Then insert all the outer screws (q.ty 12) tightening them to a torque of 48 lb-ft (65 Nm).

STEP 59



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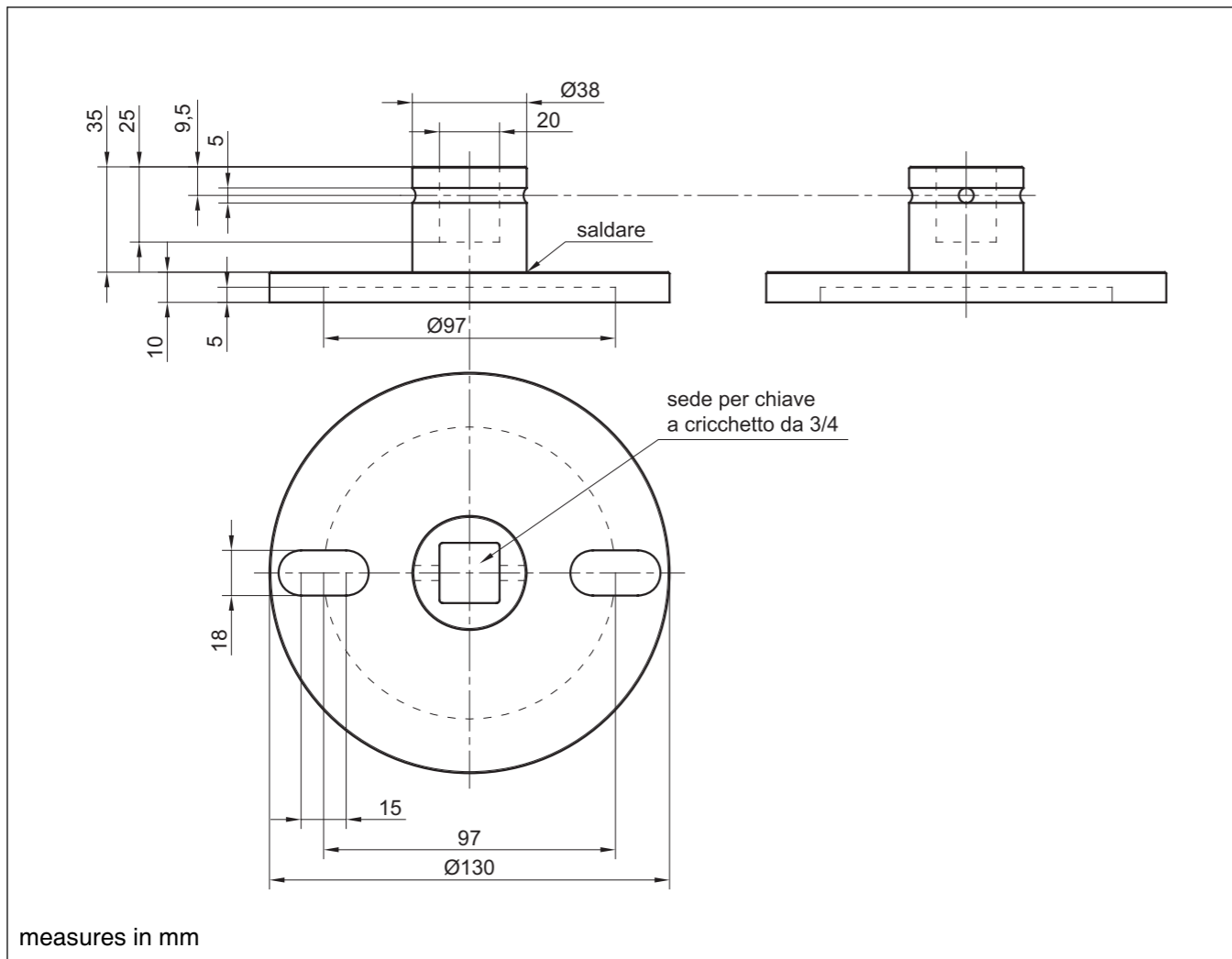
Tighten all the screws to a torque of 40 lb-ft (55 Nm).

STEP 60



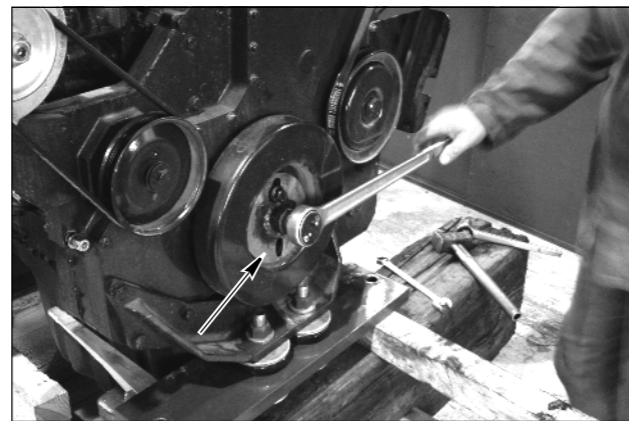
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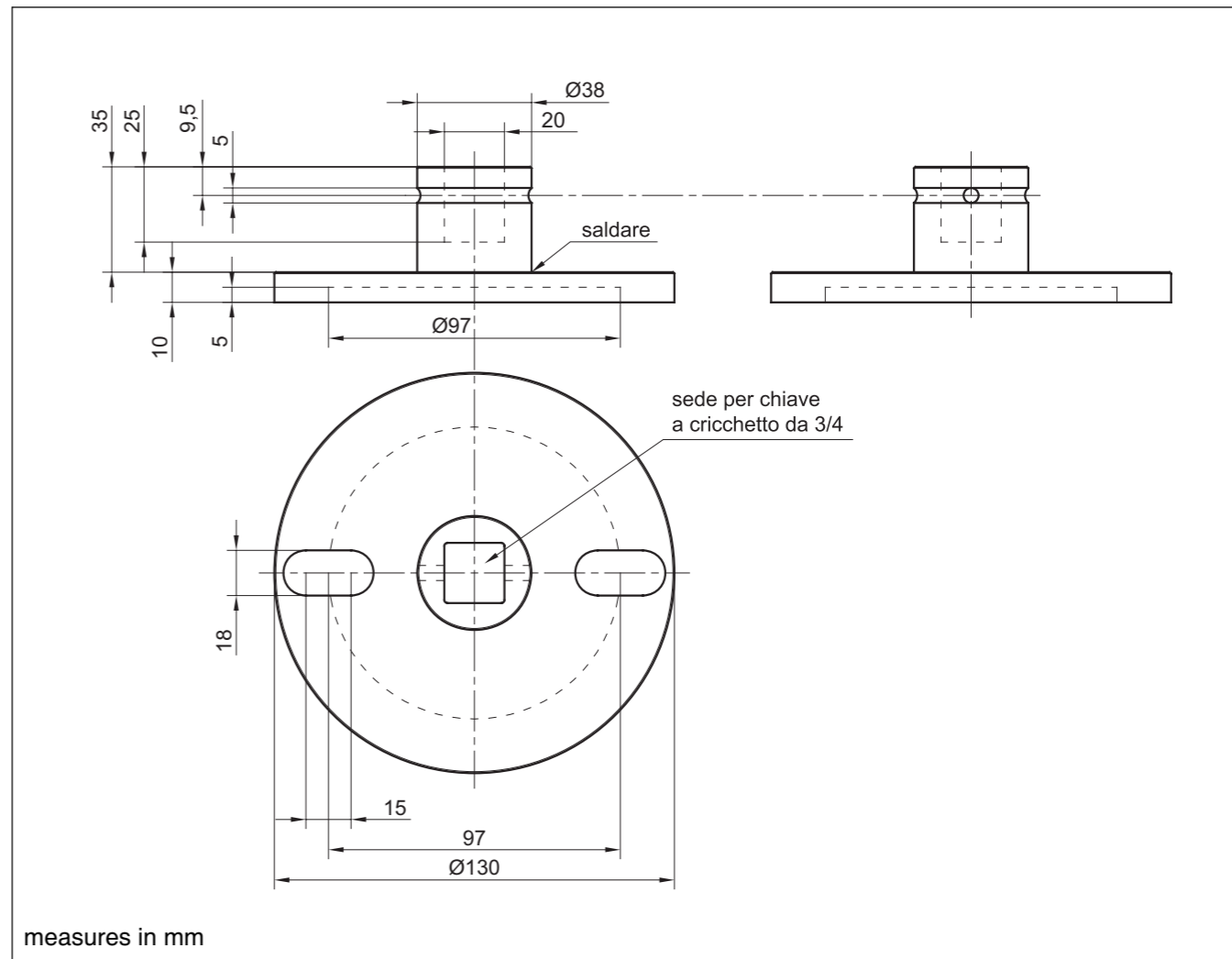


W270-1R089

Tool for rotation engine crankshaft during the assembly / disassembly phase between engine and transmission.

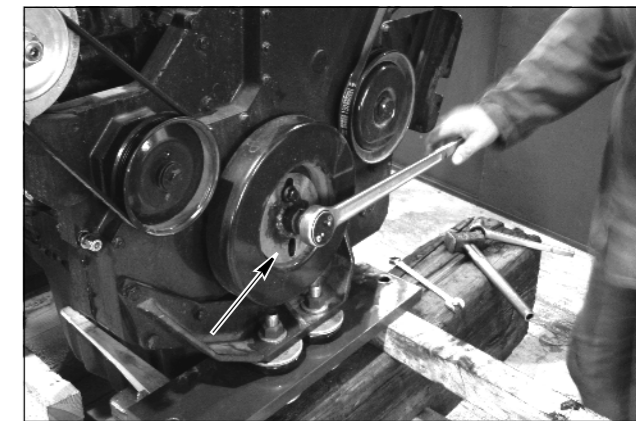


W270-1R090



W270-1R089

Tool for rotation engine crankshaft during the assembly / disassembly phase between engine and transmission.



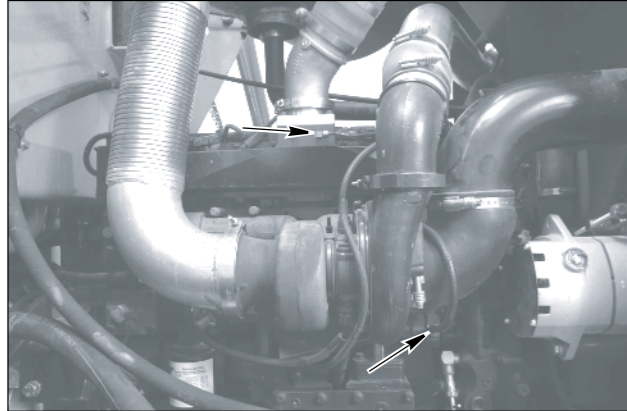
W270-1R090

TROUBLESHOOTING AFTERCOOLER

STEP 1

Park machine on level ground, lower the bucket. Put transmission in neutral, apply the parking brake. Turn off engine.

STEP 2



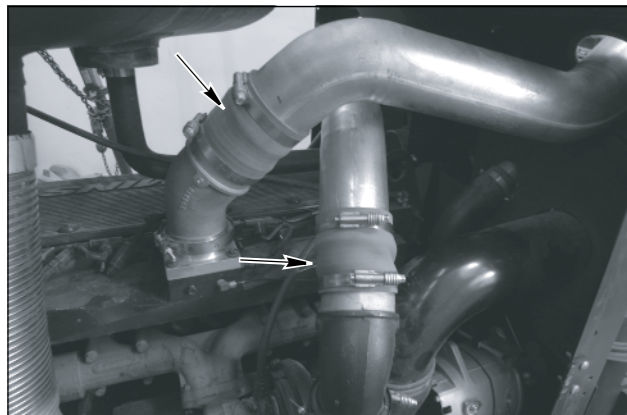
BD07B212

Raise hood. Install 'T' fitting in waste gate valve hose. Attach pressure gauge. Install another pressure gauge into the intake manifold port.

STEP 3

Have assistant start engine and run at 2000 r/min (rpm). Record pressure readings for both gauges. If the pressure difference is greater than 67.6 m Bar (0.98 psi), inspect cooler components for damaged or missing parts.

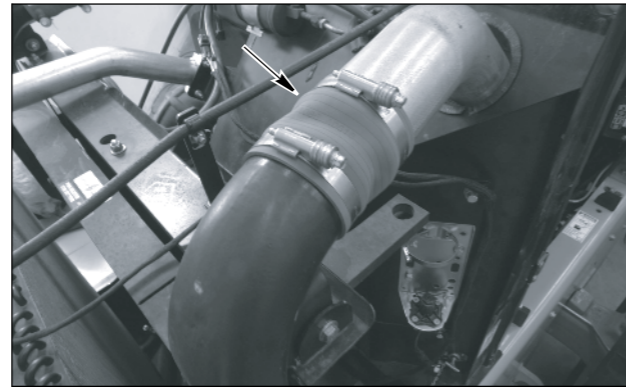
STEP 4



BD07B197

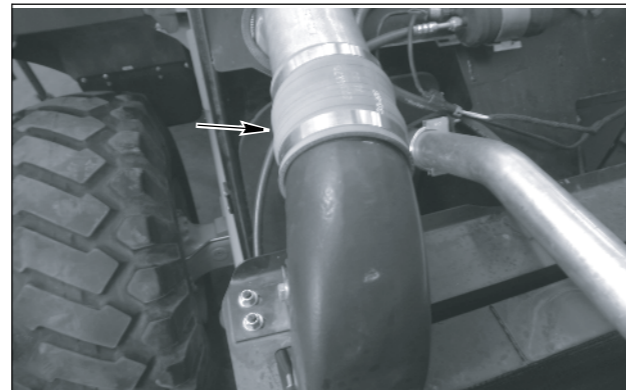
Inspect the intake manifold flex hose for leaks or holes and insure that the clamps are tight. Inspect the turbocharger flex hose for leaks or holes and insure that the clamps are tight.

STEP 5



BD07B196

Inspect the after cooler inlet flex hose for leaks or holes and insure that the clamps are tight.



BD07B195

Inspect the after cooler outlet flex hose for leaks or holes and insure that the clamps are tight.

STEP 6

Visually inspect the after cooler for damage or leaks.

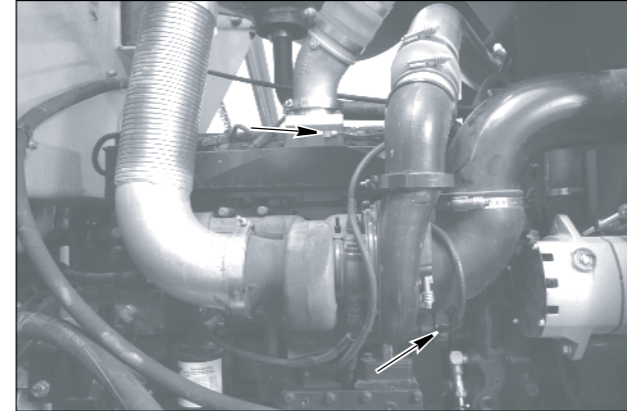
NOTE: If the leak source has not been located, remove and test the after cooler.

TROUBLESHOOTING AFTERCOOLER

STEP 1

Park machine on level ground, lower the bucket. Put transmission in neutral, apply the parking brake. Turn off engine.

STEP 2



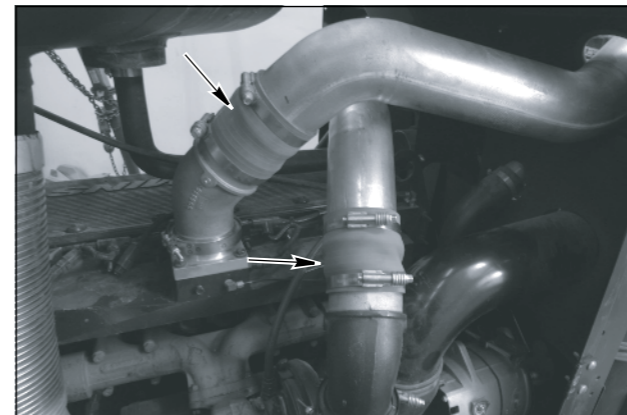
BD07B212

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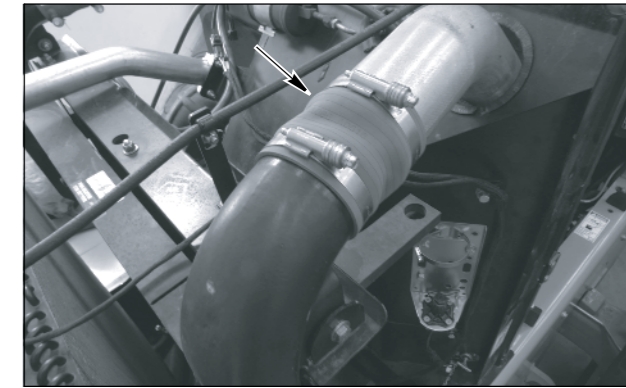
STEP 4



BD07B197

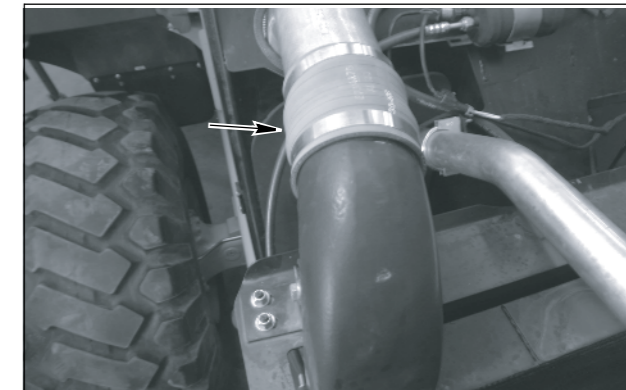
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STEP 5



BD07B196

Inspect the after cooler inlet flex hose for leaks or holes and insure that the clamps are tight.



BD07B195

Inspect the after cooler outlet flex hose for leaks or holes and insure that the clamps are tight.

STEP 6

Visually inspect the after cooler for damage or leaks.

NOTE: If the leak source has not been located, remove and test the after cooler.

ALTERNATOR

Removal

NOTE: Grill is removed for clarity only, it is not required for alternator replacement.

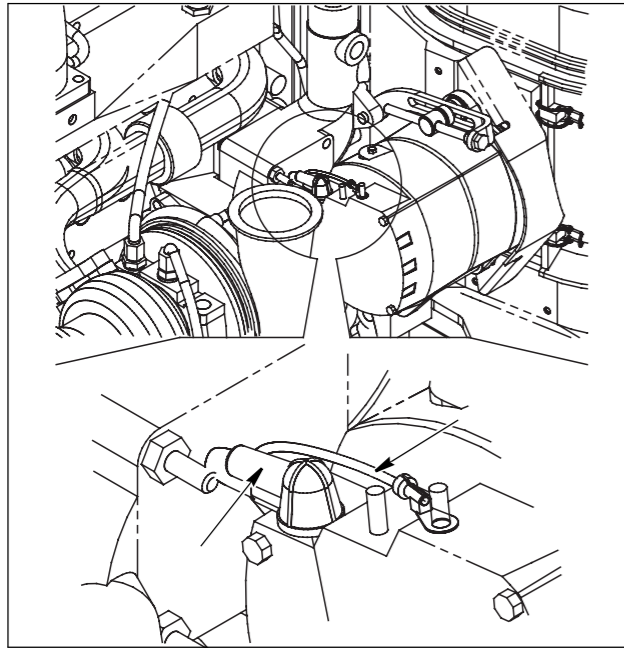
STEP 1

Park machine on a level surface and lower bucket to ground.

STEP 2

Open the left engine compartment panel. Place the master disconnect switch in the OFF position.

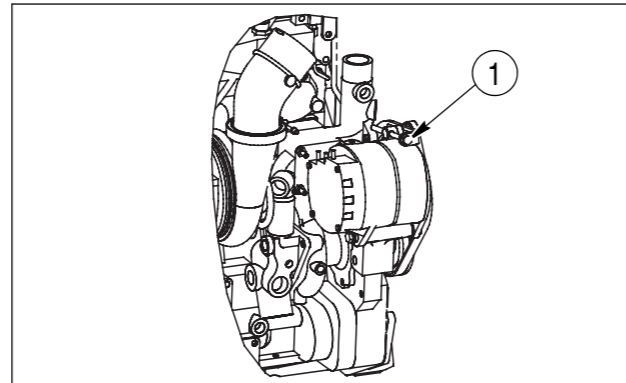
STEP 3



W270-7R010

Disconnect wires from the alternator.

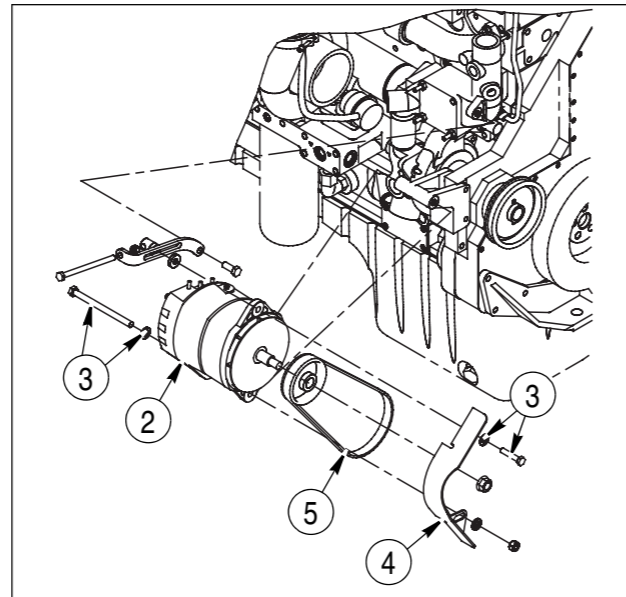
STEP 4



W270-7R012

Use a wrench to move the belt tensioner (1) to loosen the tension on the belt. Remove the belt.

STEP 5



W270-7R011

Remove alternator (2) setscrews (3, 2 q.ty) from cover (4) of belt (5) and take cover out.

ALTERNATOR

Removal

NOTE: Grill is removed for clarity only, it is not required for alternator replacement.

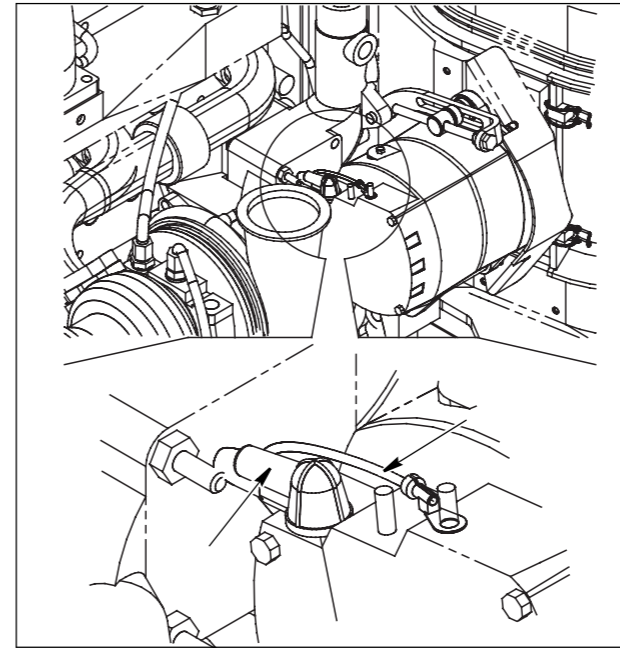
STEP 1

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STEP 2

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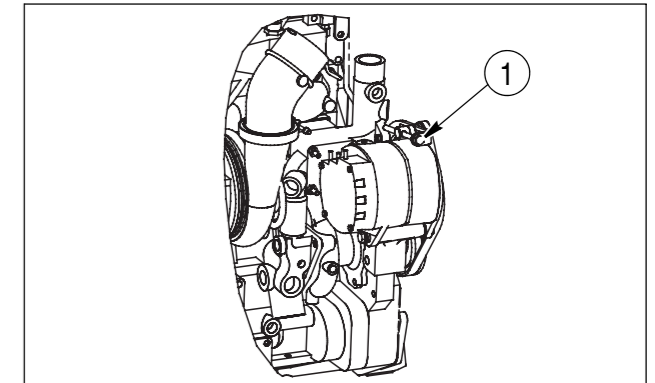
STEP 3



W270-7R010

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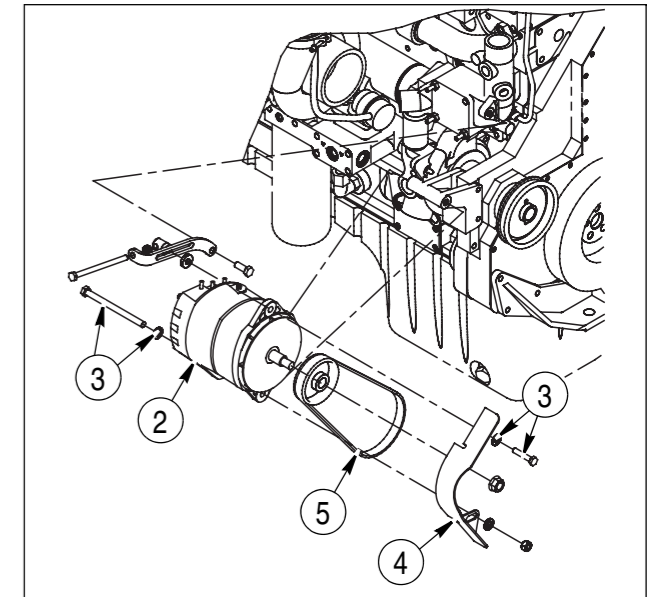
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W270-7R012

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W270-7R011

Remove alternator (2) setscrews (3, 2 q.ty) from cover (4) of belt (5) and take cover out.

SPECIFICATIONS

Electrical System	Two 12 volt batteries connected in series, negative ground
System Voltage	24 volts
Batteries	
Group Size	31
Reserve Capacity	170 minutes
Cold Cranking Capacity At -17°C (0°F) for 60 Seconds At 6.0 Volts	700 amperes
Load of Capacity (Load) Test	400 amperes
Alternator	24 volt, 95 amperes
Voltage Regulator	Solid State, Not Adjustable
Starter	24 volt, Solenoid Actuated
Bucket Control Valve (Joystick) Detent Electromagnets Resistance at 20°C (68°F) (Nominal)	68.2 ohms
Bucket Control Valve (Single Axis) Detent Electromagnets Resistance at 20°C (68°F) (Nominal)	305 ohms
Fuel Level Sender	33 to 240 ohms
Coolant, Torque Converter, and Hydraulic Temperature Sender 20°C (68°F)	3521 ohms
Transmission Filter Restriction Switch with 510 ohms Internal Resistor (Normally Open)	
Closing Set point	2.8 Bar (40 psi)
Hydraulic Filter Restriction Switch (Normally Open) Closing Set point	2.8 Bar (40 psi)
Air Filter Restriction Switch (Normally Open) Closing Set point	-6.4 kPa (Gauge) (-0.928 psig)
A/C Trinary Pressure Switch (Closed With Normal System Pressure)	
Opens With Pressure	Above 28.5 ± 2.5 bar (413.3 ± 36.25 psi) Below 2.5 ± 0.25 bar (36.25 ± 3.6 psi)
Brake Declutch Pressure Switch (Normally Closed) Opening Set point	24 Bar (350 psi)
Brake Warning Pressure Switch (Normally Closed) Opening Set point	106 to 115 bar (1530 to 1670 psi)
Brake Redundant Pressure Switches (Normally Open) Closing Set point 55 to 69 bar decreasing (800 to 1000 psi)	
Brake Lamp Pressure Switch (Normally Open) Closing Set point	5 to 6 bar increasing (75 to 85 psi)
Secondary Steering Pressure Switch (Form C) Closing Set point	2.4 Bar (35 psi)
Fuel Filters Heater Resistance At 20°C (68°F) (Nominal)	1.9 ohms
Parking Brake Solenoid DC Resistance At 20°C (68°F) (Nominal)	40.3 ohms
Pilot Pressure Solenoid (Joystick) DC Resistance At 20°C (68°F) (Nominal)	29.9 ohms
Pilot Pressure Solenoid (Single Axis) DC Resistance At 20°C (68°F) (Nominal)	27.4 ohms
Ride Control Solenoid DC Resistance At 20°C (68°F) (Nominal)	22.7 ohms
Secondary Steering Solenoid DC Resistance At 20°C (68°F) (Nominal)	39.3 ohms
Fan Reversing Solenoid DC Resistance At 20°C (68°F) (Nominal)	39.3 ohms
Fan PWM Solenoid DC Resistance At 20°C (68°F) (Nominal)	26 to 32 ohms
Fuel Temperature Sensor At 20°C (68°F) (Nominal)	2500 ohms
Engine Control Unit	Electronic Diesel Control (EDC 7)
Analog Throttle	Idle Validation Switch Closes At 0.775V ± 0.1V
Throttle Position Potentiometer	5V Reference ± 0.2V
Low Idle Position	0.4V ± 0.025V
High Idle Position	4.0V ± 0.1V

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Bucket Control Valve (Single Axis) Detent Electromagnets Resistance at 20°C (68°F) (Nominal)	305 ohms
Fuel Level Sender	33 to 240 ohms
Coolant, Torque Converter, and Hydraulic Temperature Sender 20°C (68°F)	3521 ohms
Transmission Filter Restriction Switch with 510 ohms Internal Resistor (Normally Open)	
Closing Set point	2.8 Bar (40 psi)
Hydraulic Filter Restriction Switch (Normally Open) Closing Set point	2.8 Bar (40 psi)
Air Filter Restriction Switch (Normally Open) Closing Set point	-6.4 kPa (Gauge) (-0.928 psig)
A/C Trinary Pressure Switch (Closed With Normal System Pressure)	
Opens With Pressure	Above 28.5 ± 2.5 bar (413.3 ± 36.25 psi) Below 2.5 ± 0.25 bar (36.25 ± 3.6 psi)
Brake Declutch Pressure Switch (Normally Closed) Opening Set point	24 Bar (350 psi)
Brake Warning Pressure Switch (Normally Closed) Opening Set point	106 to 115 bar (1530 to 1670 psi)
Brake Redundant Pressure Switches (Normally Open) Closing Set point 55 to 69 bar decreasing (800 to 1000 psi)	
Brake Lamp Pressure Switch (Normally Open) Closing Set point	5 to 6 bar increasing (75 to 85 psi)
Secondary Steering Pressure Switch (Form C) Closing Set point	2.4 Bar (35 psi)
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Pilot Pressure Solenoid (Joystick) DC Resistance At 20°C (68°F) (Nominal)	29.9 ohms
Pilot Pressure Solenoid (Single Axis) DC Resistance At 20°C (68°F) (Nominal)	27.4 ohms
Ride Control Solenoid DC Resistance At 20°C (68°F) (Nominal)	22.7 ohms
Secondary Steering Solenoid DC Resistance At 20°C (68°F) (Nominal)	39.3 ohms
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Fan PWM Solenoid DC Resistance At 20°C (68°F) (Nominal)	26 to 32 ohms
Fuel Temperature Sensor At 20°C (68°F) (Nominal)	2500 ohms
Engine Control Unit	Electronic Diesel Control (EDC 7)
Analog Throttle	Idle Validation Switch Closes At 0.775V ± 0.1V
Throttle Position Potentiometer	5V Reference ± 0.2V
Low Idle Position	0.4V ± 0.025V
High Idle Position	4.0V ± 0.1V

Wire Identification Codes						
21C Bk - 1.0		Wire Size (mm ²) 0.8 mm 1.0 mm 2.0 mm 5.0 mm				
Wire Color		Bk = Black	DU = Dark Blue	S = Gray	LG = Light Green	K = Pink
Wire Name		T = Tan	W = White	N = Brown	G = Green	U = Blue
		LU = Light Blue	Or = Orange	R = Red	P = Purple	Y = Yellow
Wire Identification		From Connector			To Connector	
Wire	Circuit	Color, Size, and Material	Connector	Cavity	Connector	Cavity
18G_J	RH POSN/TAIL FUSED PWR	OR1_0-SXL	LRR_E, RH_REAR_COMB_LT	3	SPL_POS, ULTRASONIC	A
18G_J_N	RH POSN/TAIL FUSED PWR	OR1_0-SXL	HD_N, HOOD TO ENG	5	SPL_POS_NA, ULTRASONIC	A
18G_K	RH POSN/TAIL FUSED PWR	OR1_0-SXL	HD_9, HOOD TO ENG	5	SPL_P9, ULTRASONIC	A
18G_L	RH POSN/TAIL FUSED PWR	OR1_0-SXL	SPL_P9, ULTRASONIC	A	E_HD9, TRANS-HOOD	A
18G_M	RH POSN/TAIL FUSED PWR	OR1_0-SXL	SPL_P9, ULTRASONIC	A	LRR_9, RH_REAR_COMB_LT	3
18J	EDC7 TIME DLY FSD PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	18	SPL_D2, ULTRASONIC	A
18J_A	EDC7 TIME DLY FSD PWR	OR2_0-SXL	ENG, ENGINE-CAB	18	SPL_EDC2, ULTRASONIC	A
18J_B	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC2, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	3
18J_C	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC2, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	2
18J_D	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	8
18J_E	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	9
18J_F	EDC7 TIME DLY FSD PWR	OR2_0-SXL	ENG, ENGINE-CAB	14	SPL_EDC4, ULTRASONIC	A
18J_G	EDC7 TIME DLY FSD PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	14	SPL_D2, ULTRASONIC	A
18J_H	WIF SENSOR FUSED PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	WIF, WATER_IN_FUEL_SNSR	3
18J_K	EDC7 TIME DLY FSD PWR	OR3_0-GXL	SPL_D2, ULTRASONIC	A	ECD, ELECT CNTR D	AA2
18J_L	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	17
18J_M	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC2, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	7
18J_N	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC2, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	8
18J_P	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	18
18J_Q	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	28
18K_A	DIAGNOSTIC FUSED PWR	OR0_8-GXL	DIA, DIAGNOSTIC	B	ECC, ELECT CNTR C	A9
18L_A	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECA, ELECT CNTR A	A2
18L_B	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECC, ELECT CNTR C	D9
18L_C	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECC, ELECT CNTR C	B9
18L_D	COMFORT STEER FSD PWR	OR0_8-GXL	SCS, COMFORT STEER SW	2	SPL_CSTR, ULTRASONIC	A
18M	AC RELAY FUSED PWR	OR0_8-GXL	ECA, ELECT CNTR A	C5	ECD, ELECT CNTR D	B9
18N	BLOWER MOTOR FUSED PWR	OR3_0-GXL	SPL_BLWR, ULTRASONIC	A	ECA, ELECT CNTR A	C1
18N_A	BLOWER MOTOR FUSED PWR	OR0_8-GXL	SPL_BLWR, ULTRASONIC	A	HVAC1, HVAC1	B
18N_B	BLOWER MOTOR FUSED PWR	OR3_0-GXL	SPL_BLWR, ULTRASONIC	A	HVAC2, HVAC2	1
18R	VOLTMETER RLY FUSED PWR	OR2_0-SXL	ENG, ENGINE-CAB	13	PRM_C1, PRM OUTPUT	A
18R_A	VOLTMETER RLY FUSED PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	13	ECB, ELECT CNTR B	B1
19A	OUTPUT SP SENSOR FSD PWR	OR1_0-SXL	TRANS, CAB-TRANSMISSION	29	OSS, OUT_SPEED_SENS	3

Wire Identification Codes						
21C Bk - 1.0		Wire Size (mm ²) 0.8 mm 1.0 mm 2.0 mm 5.0 mm				
Wire Color		Bk = Black	DU = Dark Blue	S = Gray	LG = Light Green	K = Pink
Wire Name		T = Tan	W = White	N = Brown	G = Green	U = Blue
		LU = Light Blue	Or = Orange	R = Red	P = Purple	Y = Yellow
Wire Identification		From Connector			To Connector	
Wire	Circuit	Color, Size, and Material	Connector	Cavity	Connector	Cavity
18G_J	RH POSN/TAIL FUSED PWR	OR1_0-SXL	LRR_E, RH_REAR_COMB_LT	3	SPL_POS, ULTRASONIC	A
18G_J_N	RH POSN/TAIL FUSED PWR	OR1_0-SXL	HD_N, HOOD TO ENG	5	SPL_POS_NA, ULTRASONIC	A
18G_K	RH POSN/TAIL FUSED PWR	OR1_0-SXL	HD_9, HOOD TO ENG	5	SPL_P9, ULTRASONIC	A
18G_L	RH POSN/TAIL FUSED PWR	OR1_0-SXL	SPL_P9, ULTRASONIC	A	E_HD9, TRANS-HOOD	A
18G_M	RH POSN/TAIL FUSED PWR	OR1_0-SXL	SPL_P9, ULTRASONIC	A	LRR_9, RH_REAR_COMB_LT	3
18J	EDC7 TIME DLY FSD PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	18	SPL_D2, ULTRASONIC	A
18J_A	EDC7 TIME DLY FSD PWR	OR2_0-SXL	ENG, ENGINE-CAB	18	SPL_EDC2, ULTRASONIC	A
18J_B	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC2, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	3
18J_C	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC2, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	2
18J_D	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	8
18J_E	EDC7 TIME DLY FSD PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	EDC7, ENGINE CONTROLLER	9
18J_F	EDC7 TIME DLY FSD PWR	OR2_0-SXL	ENG, ENGINE-CAB	14	SPL_EDC4, ULTRASONIC	A
18J_G	EDC7 TIME DLY FSD PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	14	SPL_D2, ULTRASONIC	A
18J_H	WIF SENSOR FUSED PWR	OR1_0-GXL	SPL_EDC4, ULTRASONIC	A	WIF, WATER_IN_FUEL_SNSR	3
18J_K	EDC7 TIME DLY FSD PWR	OR3_0-GXL	SPL_D2, ULTRASONIC	A	ECD, ELECT CNTR D	AA2
18J_L	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	17
18J_M	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC2, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	7
18J_N	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC2, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	8
18J_P	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	18
18J_Q	QSM11 TIME DELAY PWR	OR0_8-GXL	SPL_EDC4, ULTRASONIC	A	QSM11, ENGINE CONTROLLER	28
18K_A	DIAGNOSTIC FUSED PWR	OR0_8-GXL	DIA, DIAGNOSTIC	B	ECC, ELECT CNTR C	A9
18L_A	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECA, ELECT CNTR A	A2
18L_B	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECC, ELECT CNTR C	D9
18L_C	COMFORT STEER FSD PWR	OR0_8-GXL	SPL_CSTR, ULTRASONIC	A	ECC, ELECT CNTR C	B9
18L_D	COMFORT STEER FSD PWR	OR0_8-GXL	SCS, COMFORT STEER SW	2	SPL_CSTR, ULTRASONIC	A
18M	AC RELAY FUSED PWR	OR0_8-GXL	ECA, ELECT CNTR A	C5	ECD, ELECT CNTR D	B9
18N	BLOWER MOTOR FUSED PWR	OR3_0-GXL	SPL_BLWR, ULTRASONIC	A	ECA, ELECT CNTR A	C1
18N_A	BLOWER MOTOR FUSED PWR	OR0_8-GXL	SPL_BLWR, ULTRASONIC	A	HVAC1, HVAC1	B
18N_B	BLOWER MOTOR FUSED PWR	OR3_0-GXL	SPL_BLWR, ULTRASONIC	A	HVAC2, HVAC2	1
18R	VOLTMETER RLY FUSED PWR	OR2_0-SXL	ENG, ENGINE-CAB	13	PRM_C1, PRM OUTPUT	A
18R_A	VOLTMETER RLY FUSED PWR	OR2_0-GXL	CAB_E, CAB-ENGINE	13	ECB, ELECT CNTR B	B1
19A	OUTPUT SP SENSOR FSD PWR	OR1_0-SXL	TRANS, CAB-TRANSMISSION	29	OSS, OUT_SPEED_SENS	3

Wire Identification Codes						
21C		Bk - 1.0		Wire Size (mm ²)		
Wire Color		Bk = Black	DU = Dark Blue	S = Gray	LG = Light Green	K = Pink
Wire Name		T = Tan	W = White	N = Brown	G = Green	U = Blue
		LU = Light Blue	Or = Orange	R = Red	P = Purple	Y = Yellow
Wire Identification		From Connector		To Connector		
Wire	Circuit	Color, Size, and Material	Connector	Cavity	Connector	Cavity
36H	HYDRAULIC OIL TEMP	P1_0-SXL	TRANS, CAB-TRANSMISSION	30	HOT, HYD_OIL_TEMP_SEND	A
36H_A	HYDRAULIC OIL TEMP	P0_8-TXL	CAB_T, CAB-TRANSMISSION	30	AIC_1, ADV INSTR CLUSTER 1	9
36R_A	TRANS TEMPS/FLTR RETURN	P1_0-SXL	TRANS, CAB-TRANSMISSION	12	SPL_H1, ULTRASONIC	A
36R_B	TRANS FLTR MAINT SW RETURN	P1_0-SXL	SPL_H1, ULTRASONIC	A	FM, FILT_MAINT_SW	2
36R_C	VALVE BODY TEMP RETURN	P0_8-TXL	SPL_H1, ULTRASONIC	A	TRC, TRANS_CONTROL	9
36R_D	TCO TEMP RETURN	P1_0-SXL	SPL_H1, ULTRASONIC	A	TCOT, TCO_SENDER	2
36R_E	TRANS TEMPS/FLTR RETURN	P0_8-TXL	CAB_T, CAB-TRANSMISSION	12	TECM, TRANS	46
36T	VALVE BODY TEMP SGNL	P0_8-TXL	TRANS, CAB-TRANSMISSION	5	TRC, TRANS_CONTROL	8
36T_A	VALVE BODY TEMP SGNL	P0_8-TXL	CAB_T, CAB-TRANSMISSION	5	TECM, TRANS	39
37D_A	DIAGNOSTIC SGNL	P0_8-TXL	108F, DIAGNOSTIC_CONNECTOR	2	TECM, TRANS	15
37E	DIAGNOSTIC SGNL SWITCHED	P0_8-TXL	108F, DIAGNOSTIC_CONNECTOR	4	TECM, TRANS	18
41H_A	HIGH BEAM PWR	OR1_0-GXL	SRHSTLK, RH STALK SWITCH	56a	SPL_PK2, SPLICE 3-4WAY	L
41H_B	HIGH BEAM LH PWR	OR0_8-GXL	SPL_PK2, SPLICE 3-4WAY	K	ECB, ELECT CNTR B	A3
41H_C	HIGH BEAM RH PWR	OR0_8-GXL	SPL_PK2, SPLICE 3-4WAY	J	ECB, ELECT CNTR B	A4
41H_D	HIGH BEAM PWR	OR0_8-TXL	SW_PD, SWITCH PAD	1	SPL_PK2, SPLICE 3-4WAY	M
41J	DR LTS PWR	OR1_0-GXL	SDR, DRIVING LIGHTS SW	6	SRHSTLK, RH STALK SWITCH	56
41L_A	LOW BEAM PWR	OR1_0-GXL	SRHSTLK, RH STALK SWITCH	56b	SPL_LB, ULTRASONIC	
41L_B	LOW BEAM LH PWR	OR0_8-GXL	SPL_LB, ULTRASONIC		ECB, ELECT CNTR B	A6
41L_C	LOW BEAM RH PWR	OR0_8-GXL	SPL_LB, ULTRASONIC		ECB, ELECT CNTR B	A5
41T	POSN LIGHTS SW PWR	K1_0-GXL	SDR, DRIVING LIGHTS SW	3	SPL_PK2, SPLICE 3-4WAY	C
41T_A	POSN LIGHTS RH SW PWR	K1_0-GXL	SPL_PK2, SPLICE 3-4WAY	D	ECB, ELECT CNTR B	A8
41T_B	POSN LIGHTS LH SW PWR	K1_0-GXL	SPL_PK2, SPLICE 3-4WAY	A	ECB, ELECT CNTR B	A7
41T_C	POSN LIGHTS SW PWR	K1_0-GXL	D_OR, DIODE OR	B	SPL_D, ULTRASONIC	
41T_D	POSN LIGHTS SW PWR	K0_8-TXL	SW_PD, SWITCH PAD	2	SPL_D, ULTRASONIC	
41T_E	POSN LIGHTS SW PWR	K1_0-SXL	SPL_PK2, SPLICE 3-4WAY	B	SPL_D, ULTRASONIC	
42C_A	FNT WRK LTS FUSE PWR	DU1_0-GXL	CAB_RF, CAB TO ROOF CONNECTION	C	SPL_PK1, SPLICE 3-4WAY	A
42C_C	FNT WRK LTS FUSE PWR	DU1_0-GXL	SPL_PK1, SPLICE 3-4WAY	D	ECB, ELECT CNTR B	AA1

Wire Identification Codes						
21C		Bk - 1.0		Wire Size (mm ²)		
Wire Color		Bk = Black	DU = Dark Blue	S = Gray	LG = Light Green	K = Pink
Wire Name		T = Tan	W = White	N = Brown	G = Green	U = Blue
		LU = Light Blue	Or = Orange	R = Red	P = Purple	Y = Yellow
Wire Identification		From Connector		To Connector		
Wire	Circuit	Color, Size, and Material	Connector	Cavity	Connector	Cavity
36H	HYDRAULIC OIL TEMP	P1_0-SXL	TRANS, CAB-TRANSMISSION	30	HOT, HYD_OIL_TEMP_SEND	A
36H_A	HYDRAULIC OIL TEMP	P0_8-TXL	CAB_T, CAB-TRANSMISSION	30	AIC_1, ADV INSTR CLUSTER 1	9
36R_A	TRANS TEMPS/FLTR RETURN	P1_0-SXL	TRANS, CAB-TRANSMISSION	12	SPL_H1, ULTRASONIC	A
36R_B	TRANS FLTR MAINT SW RETURN	P1_0-SXL	SPL_H1, ULTRASONIC	A	FM, FILT_MAINT_SW	2
36R_C	VALVE BODY TEMP RETURN	P0_8-TXL	SPL_H1, ULTRASONIC	A	TRC, TRANS_CONTROL	9
36R_D	TCO TEMP RETURN	P1_0-SXL	SPL_H1, ULTRASONIC	A	TCOT, TCO_SENDER	2
36R_E	TRANS TEMPS/FLTR RETURN	P0_8-TXL	CAB_T, CAB-TRANSMISSION	12	TECM, TRANS	46
36T	VALVE BODY TEMP SGNL	P0_8-TXL	TRANS, CAB-TRANSMISSION	5	TRC, TRANS_CONTROL	8
36T_A	VALVE BODY TEMP SGNL	P0_8-TXL	CAB_T, CAB-TRANSMISSION	5	TECM, TRANS	39
37D_A	DIAGNOSTIC SGNL	P0_8-TXL	108F, DIAGNOSTIC_CONNECTOR	2	TECM, TRANS	15
37E	DIAGNOSTIC SGNL SWITCHED	P0_8-TXL	108F, DIAGNOSTIC_CONNECTOR	4	TECM, TRANS	18
41H_A	HIGH BEAM PWR	OR1_0-GXL	SRHSTLK, RH STALK SWITCH	56a	SPL_PK2, SPLICE 3-4WAY	L
41H_B	HIGH BEAM LH PWR	OR0_8-GXL	SPL_PK2, SPLICE 3-4WAY	K	ECB, ELECT CNTR B	A3
41H_C	HIGH BEAM RH PWR	OR0_8-GXL	SPL_PK2, SPLICE 3-4WAY	J	ECB, ELECT CNTR B	A4
41H_D	HIGH BEAM PWR	OR0_8-TXL	SW_PD, SWITCH PAD	1	SPL_PK2, SPLICE 3-4WAY	M
41J	DR LTS PWR	OR1_0-GXL	SDR, DRIVING LIGHTS SW	6	SRHSTLK, RH STALK SWITCH	56
41L_A	LOW BEAM PWR	OR1_0-GXL	SRHSTLK, RH STALK SWITCH	56b	SPL_LB, ULTRASONIC	
41L_B	LOW BEAM LH PWR	OR0_8-GXL	SPL_LB, ULTRASONIC		ECB, ELECT CNTR B	A6
41L_C	LOW BEAM RH PWR	OR0_8-GXL	SPL_LB, ULTRASONIC		ECB, ELECT CNTR B	A5
41T	POSN LIGHTS SW PWR	K1_0-GXL	SDR, DRIVING LIGHTS SW	3	SPL_PK2, SPLICE 3-4WAY	C
41T_A	POSN LIGHTS RH SW PWR	K1_0-GXL	SPL_PK2, SPLICE 3-4WAY	D	ECB, ELECT CNTR B	A8
41T_B	POSN LIGHTS LH SW PWR	K1_0-GXL	SPL_PK2, SPLICE 3-4WAY	A	ECB, ELECT CNTR B	A7
41T_C	POSN LIGHTS SW PWR	K1_0-GXL	D_OR, DIODE OR	B	SPL_D, ULTRASONIC	
41T_D	POSN LIGHTS SW PWR	K0_8-TXL	SW_PD, SWITCH PAD	2	SPL_D, ULTRASONIC	
41T_E	POSN LIGHTS SW PWR	K1_0-SXL	SPL_PK2, SPLICE 3-4WAY	B	SPL_D, ULTRASONIC	
42C_A	FNT WRK LTS FUSE PWR	DU1_0-GXL	CAB_RF, CAB TO ROOF CONNECTION	C	SPL_PK1, SPLICE 3-4WAY	A
42C_C	FNT WRK LTS FUSE PWR	DU1_0-GXL	SPL_PK1, SPLICE 3-4WAY	D	ECB, ELECT CNTR B	AA1

UNDERSTANDING THE TROUBLESHOOTING TABLES

1 – Alternator ①		
Check Points ②	Correct Reading ③	Possible Cause of Bad Reading ④
Check the 10 ampere fuse at location 3 and 4C in the fuse block.	Good	Bad fuse.
Terminal for wire 1A to ground	12 volts	Check wire 1A between the starter terminal (21) and the alternator (1). ← ⑤
NOTE: If the readings are good, see Section 4004 and check the starter. ← ⑥		

1. This title is the number and component name on the Electrical Schematic.
2. This column shows the location of the check point.
3. This column shows the indication of the check.
4. This column shows the possible cause of a bad test indication.
5. The numbers in the parentheses show the number of the component on the Electrical Schematic.
6. This statement assumes that all other problems are solved at this point in the test.

LOCATING COMPONENTS ON THE SCHEMATIC POSTERS

NOTE: For the System Electrical Schematic refer to the Schematic Posters located at the rear of this manual.

Components can be located on the Electrical Schematic posters (rear pocket) by item number using the key at the bottom of the posters. Use the following index to find the sheet a component is located on.

COMPONENT	COMPONENT NUMBER	SCHEMATIC SHEET
12 Volt Radio (Option)	123	8
Actuator	143	9
Air Conditioning High Pressure Switch	129	8
Air Conditioning Low Pressure Switch	129	8
Air Filter Restriction Switch	66	5
Air Seat Compressor	126	8
Alternator	3	1
Back-up Alarm	103	2
Backup Alarm Disable Switch	79	2
Back-up Alarm Relay	78	2

UNDERSTANDING THE TROUBLESHOOTING TABLES

1 – Alternator ①		
Check Points ②	Correct Reading ③	Possible Cause of Bad Reading ④
Check the 10 ampere fuse at location 3 and 4C in the fuse block.	Good	Bad fuse.
Terminal for wire 1A to ground	12 volts	Check wire 1A between the starter terminal (21) and the alternator (1). ← ⑤
NOTE: If the readings are good, see Section 4004 and check the starter. ← ⑥		

1. This title is the number and component name on the Electrical Schematic.
2. This column shows the location of the check point.
3. This column shows the indication of the check.
4. This column shows the possible cause of a bad test indication.
5. The numbers in the parentheses show the number of the component on the Electrical Schematic.
6. This statement assumes that all other problems are solved at this point in the test.

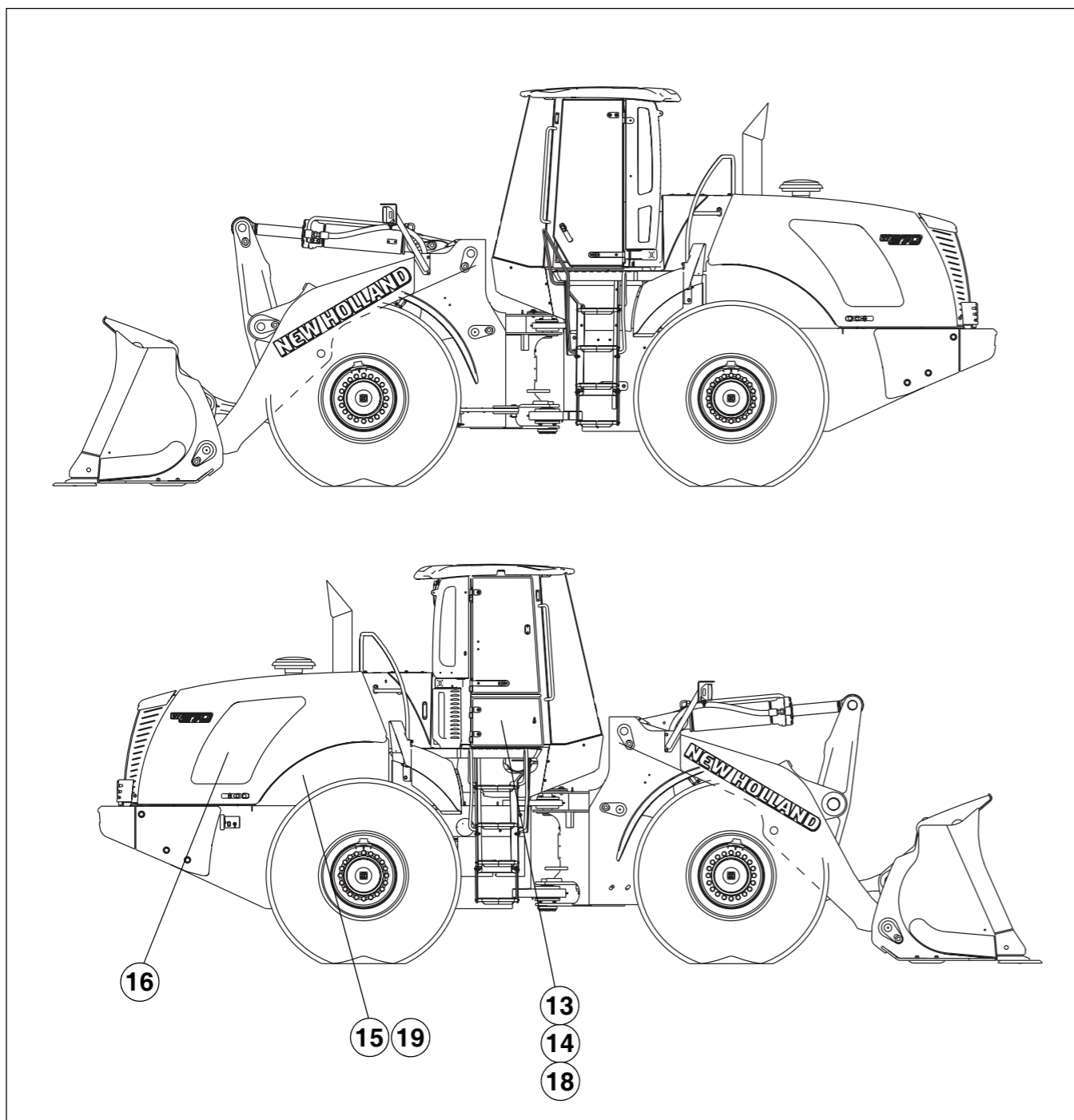
LOCATING COMPONENTS ON THE SCHEMATIC POSTERS

NOTE: For the System Electrical Schematic refer to the Schematic Posters located at the rear of this manual.

Components can be located on the Electrical Schematic posters (rear pocket) by item number using the key at the bottom of the posters. Use the following index to find the sheet a component is located on.

COMPONENT	COMPONENT NUMBER	SCHEMATIC SHEET
12 Volt Radio (Option)	123	8
Actuator	143	9
Air Conditioning High Pressure Switch	129	8
Air Conditioning Low Pressure Switch	129	8
Air Filter Restriction Switch	66	5
Air Seat Compressor	126	8
Alternator	3	1
Back-up Alarm	103	2
Backup Alarm Disable Switch	79	2
Back-up Alarm Relay	78	2

POWER RELAY MODULES AND COLD STARTING SYSTEMS

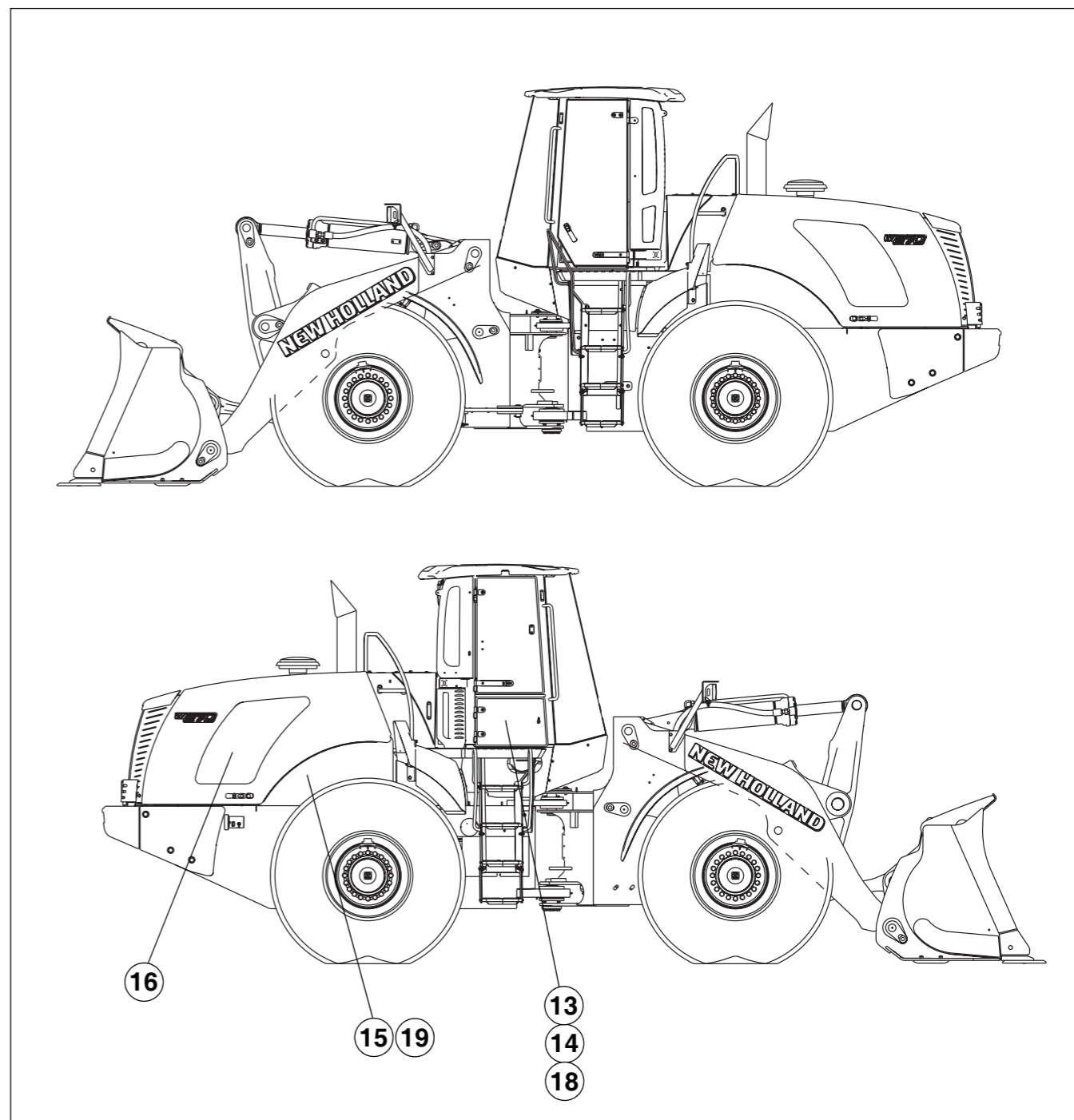


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|--------------------------|-------------------------------------|
| 13. POWER RLEY MODULE A | 18. POWER RELAY MODULE D |
| 14. POWER RELAY MODULE B | 19. CIRCUIT BREAKER CAB + |
| 15. POWER RELAY MODULE C | 20. COMFORT STEER RELAY (OPTION) |
| 16. ETHER SOLENOID | 21. COMFORT STEER SOLENOID (OPTION) |
| 17. VOLTMETER FUSE | |

NOTE: The battery must be at full charge and all connections clean and tight before doing any testing of the electrical system. Use a Multimeter for the following tests.

POWER RELAY MODULES AND COLD STARTING SYSTEMS



W270-7R021

- | | |
|--------------------------|-------------------------------------|
| 13. POWER RLEY MODULE A | 18. POWER RELAY MODULE D |
| 14. POWER RELAY MODULE B | 19. CIRCUIT BREAKER CAB + |
| 15. POWER RELAY MODULE C | 20. COMFORT STEER RELAY (OPTION) |
| 16. ETHER SOLENOID | 21. COMFORT STEER SOLENOID (OPTION) |
| 17. VOLTMETER FUSE | |

NOTE: The battery must be at full charge and all connections clean and tight before doing any testing of the electrical system. Use a Multimeter for the following tests.

32 – Pin Engage Switch (option)		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: No information at time of print.		

33 – Pilot Pressure Solenoid		
Located on bottom side of pilot controls.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-DU to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position. Make sure the pilot control switch (36) is OFF.		
Terminal A for wire 53P-A to ground	24 volts	Bad pilot control relay (26), also check circuit 53P.
NOTE: If the readings are good, replace the pilot pressure solenoid.		

34 – Rear Axle Oil Temperature Sender		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: No information at time of print.		

32 – Pin Engage Switch (option)		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: No information at time of print.		

33 – Pilot Pressure Solenoid		
Located on bottom side of pilot controls.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-DU to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position. Make sure the pilot control switch (36) is OFF.		
Terminal A for wire 53P-A to ground	24 volts	Bad pilot control relay (26), also check circuit 53P.
NOTE: If the readings are good, replace the pilot pressure solenoid.		

34 – Rear Axle Oil Temperature Sender		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: No information at time of print.		

65 – Fuel Level Sender		
Located on the fuel tank top right side.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-BU to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 36F to ground	Approximately 5 volts	Check the instrument cluster.
NOTE: Put the ignition switch and the master disconnect switch in the OFF position. Tag and disconnect the wires from the fuel level sender.		
Between terminals of fuel level sender	33 to 240 ohms @ 20° C (68° F)	Bad fuel level sender.

66 – Air Filter Restriction Switch		
Located on the air filter left side.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Air filter restriction switch closes at -6.4 kPa (Gauge) (-0.928 psig).		
Terminal for wire 0-BY to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 31F to ground	Approximately 11.5 volts	Check the instrument cluster and switch pad.
NOTE: If the readings are correct replace the air filter restriction indicator switch.		

67 – Parking Brake Solenoid		
Located on the foot brake valve.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-AN to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and ignition switch in ON position. Put parking brake switch in OFF position. Have assistant press and hold foot brake and place FNR switch either in F or R position.		
Terminal 1 for wire 52P to ground	24 volts	Bad parking brake relay (64). Also check circuit 52P
NOTE: If the readings are good, replace the parking brake solenoid.		

65 – Fuel Level Sender		
Located on the fuel tank top right side.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-BU to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 36F to ground	Approximately 5 volts	Check the instrument cluster.
NOTE: Put the ignition switch and the master disconnect switch in the OFF position. Tag and disconnect the wires from the fuel level sender.		
Between terminals of fuel level sender	33 to 240 ohms @ 20° C (68° F)	Bad fuel level sender.

66 – Air Filter Restriction Switch		
Located on the air filter left side.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Air filter restriction switch closes at -6.4 kPa (Gauge) (-0.928 psig).		
Terminal for wire 0-BY to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 31F to ground	Approximately 11.5 volts	Check the instrument cluster and switch pad.
NOTE: If the readings are correct replace the air filter restriction indicator switch.		

67 – Parking Brake Solenoid		
Located on the foot brake valve.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-AN to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch and ignition switch in ON position. Put parking brake switch in OFF position. Have assistant press and hold foot brake and place FNR switch either in F or R position.		
Terminal 1 for wire 52P to ground	24 volts	Bad parking brake relay (64). Also check circuit 52P
NOTE: If the readings are good, replace the parking brake solenoid.		

83 – Dome Lamp		
Located in top of cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Bulb	Continuity	Bad bulb.
Terminal for wire 0-MB to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position. Put dome lamp switch in ON position.		
Terminal for wire 19U-C to ground	24 volts	Check fuse ECC-F1, also check circuit 19U.
Terminal for wire 43-B to ground	24 volts 3 to 5 seconds	Check circuit 43, also check advanced instrument cluster and time delay module (7).
NOTE: If readings are good, replace dome lamp.		

84 – Beacon Switch (Option)		
Located on right side console.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-B15 to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position and driving lamp switch (95) in position 3.		
Terminal for wire 19U-H to ground	24 volts	Check fuse ECC-F1, also check circuit 19U.
NOTE: Put the beacon switch in the ON position.		
Terminal for wire 46-C to ground	24 volts	Bad beacon switch.

85 – Left Hand Front Work Lamp		
Located on left front side of cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Disconnect wiring harness connector LFW from LH front work lamp connector.		
Flood lamp connector pin A to pin B	Continuity	Bad lamp bulb.
NOTE: Connect wiring harness connector LFW to LH front work lamp connector.		
Terminal for wire 0-MU to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position. Put driving lamp switch (95) in position 3.		
Terminal for wire 42C-H to ground	24 volts	Check fuse ECB-F1 and driving lamp switch (95). Also check circuit 42C from flood lamp to lamp switch (95) and wire 42-A to fuse ECC-F2.

83 – Dome Lamp		
Located in top of cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Bulb	Continuity	Bad bulb.
Terminal for wire 0-MB to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position. Put dome lamp switch in ON position.		
Terminal for wire 19U-C to ground	24 volts	Check fuse ECC-F1, also check circuit 19U.
Terminal for wire 43-B to ground	24 volts 3 to 5 seconds	Check circuit 43, also check advanced instrument cluster and time delay module (7).
NOTE: If readings are good, replace dome lamp.		

84 – Beacon Switch (Option)		
Located on right side console.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-B15 to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position and driving lamp switch (95) in position 3.		
Terminal for wire 19U-H to ground	24 volts	Check fuse ECC-F1, also check circuit 19U.
NOTE: Put the beacon switch in the ON position.		
Terminal for wire 46-C to ground	24 volts	Bad beacon switch.

85 – Left Hand Front Work Lamp		
Located on left front side of cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Disconnect wiring harness connector LFW from LH front work lamp connector.		
Flood lamp connector pin A to pin B	Continuity	Bad lamp bulb.
NOTE: Connect wiring harness connector LFW to LH front work lamp connector.		
Terminal for wire 0-MU to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch in ON position. Put driving lamp switch (95) in position 3.		
Terminal for wire 42C-H to ground	24 volts	Check fuse ECB-F1 and driving lamp switch (95). Also check circuit 42C from flood lamp to lamp switch (95) and wire 42-A to fuse ECC-F2.

97 – Right Hand Front Combination Lamp		
Located on the right front of the machine.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Disconnect wiring harness connector RF from RH front combination lamp connector.		
Combination lamp connector pin 3 to pin 1	Continuity	Bad high beam lamp bulb or internal connection.
Combination lamp connector pin 4 to pin 1	Continuity	Bad position lamp bulb or internal connection.
Combination lamp connector pin 2 to pin 1	Continuity	Bad low beam lamp bulb or internal connection.
Combination lamp connector pin 5 to pin 1	Continuity	Bad turn signal lamp bulb or internal connection.
NOTE: Connect wiring harness connector LRF to RH front combination lamp connector. Put master disconnect switch in ON position and driving lamp switch (95) in position 3.		
Terminal for wire 0-AH to ground	Continuity	Bad ground circuit.
Terminal for wire 18G-A to ground	24 volts	Check fuse ECB-F8 and driving lamp switch (95). Also check circuit 18G and wire 41T-A.
NOTE: Put high/low beam lever (94) in HIGH beam position.		
Terminal for wire 18C to ground	24 volts	Check fuse ECB-F4, driving lamp switch (95), and high/low beam switch (94). Also check circuit 18C and wire 41H.
NOTE: Put high/low beam lever (94) in LOW beam position.		
Terminal for wire 18E to ground	24 volts	Check fuse ECB-F5, driving lamp switch (95), and high/low beam switch (94). Also check circuit 18E and wire 41L-C.
NOTE: Put ignition switch in ON position. Put turn signal lever in RIGHT turn position.		
Terminal for wire 45R to ground	Intermittent 24 volts	Check the turn signal switch (94) and flasher module (92). Also check circuit 45R to flasher module.
NOTE: If all readings are good, and lamps still do not turn ON replace the RH front combination lamp.		

98 – Horn Relay		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 19U-A to ground	24 volts	Check fuse ECC-F6, also check wire 19U and 190U-A.
Terminal for wire 19U-E to ground	24 volts	Check wire 19U and 19U-E.
Terminal for wire 64C to ground	24 volts	Bad horn relay.
NOTE: Have another person push and hold the horn switch.		
Terminal for wire 64C to ground	0 volt	Bad horn switch.
Terminal for wire 64-A to ground	24 volts	Bad horn relay.

97 – Right Hand Front Combination Lamp		
Located on the right front of the machine.		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: Disconnect wiring harness connector RF from RH front combination lamp connector.		
Combination lamp connector pin 3 to pin 1	Continuity	Bad high beam lamp bulb or internal connection.
Combination lamp connector pin 4 to pin 1	Continuity	Bad position lamp bulb or internal connection.
Combination lamp connector pin 2 to pin 1	Continuity	Bad low beam lamp bulb or internal connection.
Combination lamp connector pin 5 to pin 1	Continuity	Bad turn signal lamp bulb or internal connection.
NOTE: Connect wiring harness connector LRF to RH front combination lamp connector. Put master disconnect switch in ON position and driving lamp switch (95) in position 3.		
Terminal for wire 0-AH to ground	Continuity	Bad ground circuit.
Terminal for wire 18G-A to ground	24 volts	Check fuse ECB-F8 and driving lamp switch (95). Also check circuit 18G and wire 41T-A.
NOTE: Put high/low beam lever (94) in HIGH beam position.		
Terminal for wire 18C to ground	24 volts	Check fuse ECB-F4, driving lamp switch (95), and high/low beam switch (94). Also check circuit 18C and wire 41H.
NOTE: Put high/low beam lever (94) in LOW beam position.		
Terminal for wire 18E to ground	24 volts	Check fuse ECB-F5, driving lamp switch (95), and high/low beam switch (94). Also check circuit 18E and wire 41L-C.
NOTE: Put ignition switch in ON position. Put turn signal lever in RIGHT turn position.		
Terminal for wire 45R to ground	Intermittent 24 volts	Check the turn signal switch (94) and flasher module (92). Also check circuit 45R to flasher module.
NOTE: If all readings are good, and lamps still do not turn ON replace the RH front combination lamp.		

98 – Horn Relay		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 19U-A to ground	24 volts	Check fuse ECC-F6, also check wire 19U and 190U-A.
Terminal for wire 19U-E to ground	24 volts	Check wire 19U and 19U-E.
Terminal for wire 64C to ground	24 volts	Bad horn relay.
NOTE: Have another person push and hold the horn switch.		
Terminal for wire 64C to ground	0 volt	Bad horn switch.
Terminal for wire 64-A to ground	24 volts	Bad horn relay.

109 – Front Wiper Motor		
Located in front of steering column.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-B8 to ground	Continuity	Bad ground circuit.
NOTE: Make sure the front wiper and washer switch (108) is in the OFF position, disconnect connector FWM.		
Between terminals B and D for wires 63H and 63L-A	Continuity	Bad front wiper motor. Confirm with ohm meter, this may be open when motor is parked.
NOTE: Connect connector FWM. Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 19J to ground	24 volts	Check fuse ECA-F12, also check circuit 19J.
NOTE: Put the front wiper and washer switch (108) in the LOW position.		
Terminal for wire 63L-A to ground	24 volts	Check fuse ECA-F12, also check circuit 19J. Bad front wiper and washer switch (108), low speed relay or cut out relay.
Terminal for wire 63C to ground	0 volt	Bad front wiper and washer switch (108)
NOTE: Put the front wiper and washer switch (108) in the HIGH position.		
Terminal for wire 63H-A to ground	24 volts	Check fuse ECA-F12, also check circuit 19J. Bad front wiper and washer switch (108), high speed relay or cut out relay.
Terminal for wire 63C to ground	24 volts	Bad front wiper and washer switch (108).
NOTE: Put the front wiper and washer switch in the intermittent position.		
Terminal for wire 63L-A to ground	Intermittent 24 volts	Bad front wiper and washer switch (108).
Terminal for wire 63C to ground	Intermittent 24 volts	Bad front wiper park contact.
NOTE: If the readings are good, replace the front wiper motor.		

109 – Front Wiper Motor		
Located in front of steering column.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-B8 to ground	Continuity	Bad ground circuit.
NOTE: Make sure the front wiper and washer switch (108) is in the OFF position, disconnect connector FWM.		
Between terminals B and D for wires 63H and 63L-A	Continuity	Bad front wiper motor. Confirm with ohm meter, this may be open when motor is parked.
NOTE: Connect connector FWM. Put the master disconnect switch and the ignition switch in the ON position.		
Terminal for wire 19J to ground	24 volts	Check fuse ECA-F12, also check circuit 19J.
NOTE: Put the front wiper and washer switch (108) in the LOW position.		
Terminal for wire 63L-A to ground	24 volts	Check fuse ECA-F12, also check circuit 19J. Bad front wiper and washer switch (108), low speed relay or cut out relay.
Terminal for wire 63C to ground	0 volt	Bad front wiper and washer switch (108)
NOTE: Put the front wiper and washer switch (108) in the HIGH position.		
Terminal for wire 63H-A to ground	24 volts	Check fuse ECA-F12, also check circuit 19J. Bad front wiper and washer switch (108), high speed relay or cut out relay.
Terminal for wire 63C to ground	24 volts	Bad front wiper and washer switch (108).
NOTE: Put the front wiper and washer switch in the intermittent position.		
Terminal for wire 63L-A to ground	Intermittent 24 volts	Bad front wiper and washer switch (108).
Terminal for wire 63C to ground	Intermittent 24 volts	Bad front wiper park contact.
NOTE: If the readings are good, replace the front wiper motor.		

120 – Power Relay Module E		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-DL to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch in the ON position. Turn ignition switch to the Accessory or the ON position.		
Terminal for wire PRM-E BUSS to ground	24 volts	Check circuit 1CB to 105 Amp circuit breaker in engine compartment, check circuit breaker.
Terminal for wire 19L to ground	24 volts	Bad power relay module E, bad fuse F1.

121 – Power Converter 24 volts to 12 volts (Option)		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-EJ to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch and ignition switch in ON position.		
Terminal for wire 19L-B and 19L-A to ground	24 volts	Bad fuse F1 in power relay module E, also check circuit 19L.
Terminal for wire 12V-C to ground	12 volts	Bad power converter.

122 – Power Outlet (Option)		
Located in the cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-EK or 0-EL to ground	Continuity	Bad ground circuit.
Terminal for wire 12V or 12V-A to ground	12 volts	Bad power converter (121), check fuse ECD-F4 and F5, also check wire 12V-A.
NOTE: If the readings are good replace the power outlet.		

120 – Power Relay Module E		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-DL to ground	Continuity	Bad ground circuit.
NOTE: Put the master disconnect switch in the ON position. Turn ignition switch to the Accessory or the ON position.		
Terminal for wire PRM-E BUSS to ground	24 volts	Check circuit 1CB to 105 Amp circuit breaker in engine compartment, check circuit breaker.
Terminal for wire 19L to ground	24 volts	Bad power relay module E, bad fuse F1.

121 – Power Converter 24 volts to 12 volts (Option)		
Located in the cab access panel for fuses and relays.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-EJ to ground	Continuity	Bad ground circuit.
NOTE: Put master disconnect switch and ignition switch in ON position.		
Terminal for wire 19L-B and 19L-A to ground	24 volts	Bad fuse F1 in power relay module E, also check circuit 19L.
Terminal for wire 12V-C to ground	12 volts	Bad power converter.

122 – Power Outlet (Option)		
Located in the cab.		
Check Points	Correct Reading	Possible Cause of Bad Reading
Terminal for wire 0-EK or 0-EL to ground	Continuity	Bad ground circuit.
Terminal for wire 12V or 12V-A to ground	12 volts	Bad power converter (121), check fuse ECD-F4 and F5, also check wire 12V-A.
NOTE: If the readings are good replace the power outlet.		

150 – Air Conditioning Switch		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

151 – Control Panel Lights		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

152 – Water Valve Potentiometer		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

153 – Air Recirculating Switch		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

150 – Air Conditioning Switch		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

151 – Control Panel Lights		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

152 – Water Valve Potentiometer		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

153 – Air Recirculating Switch		
Check Points	Correct Reading	Possible Cause of Bad Reading
NOTE: <i>No information at time of print.</i>		

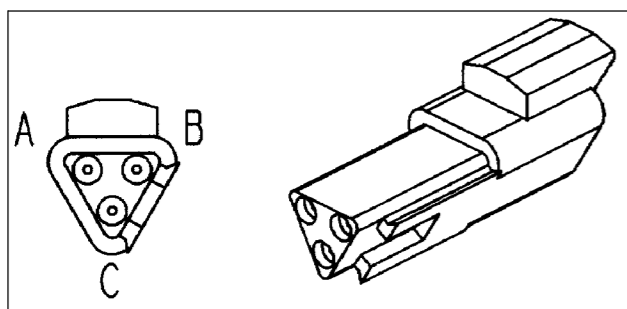
CONNECTOR DNS-COMPRESSOR-RELAY

CAV	WIRE IDENT	CIRCUIT
85	DNS19	
86	DNS20	
30	DNS16	
87	DNS14	

CONNECTOR DNS-EXTERNAL-AIR-TEMP-SNS

CAV	WIRE IDENT	CIRCUIT
1	DNS2	
2	DNS1	

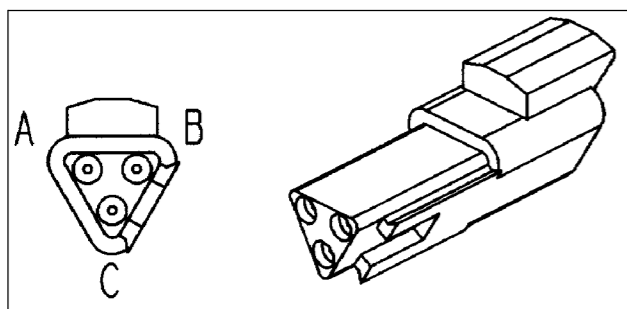
CONNECTOR DNS-HVAC-CAN1



225294C1

CAV	WIRE IDENT	CIRCUIT
A	DNS9	
B	DNS8	

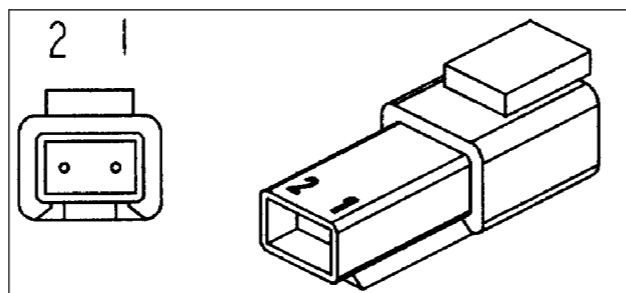
CONNECTOR DNS-HVAC1



225294C1

CAV	WIRE IDENT	CIRCUIT
A	DNS14	
B	DNS15	
C	DNS13	

CONNECTOR DNS-HVAC2



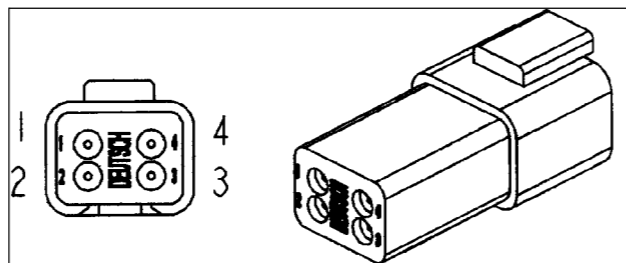
225315C1

CAV	WIRE IDENT	CIRCUIT
1	DNS36	
2	DNS35	

CONNECTOR DNS-INTERNAL-AIR-TEMP-SNS

CAV	WIRE IDENT	CIRCUIT
1	DNS4	
2	DNS3	
3	DNS17	
4	DNS5	

CONNECTOR DNS-NOT-USED



225326C1

CAV	WIRE IDENT	CIRCUIT
1	DNS12	
2	DNS11	
3	DNS10	

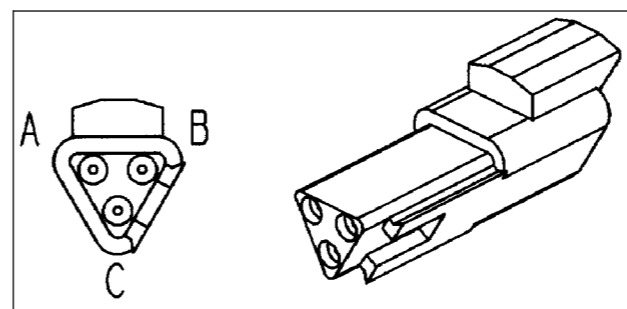
CONNECTOR DNS-COMPRESSOR-RELAY

CAV	WIRE IDENT	CIRCUIT
85	DNS19	
86	DNS20	
30	DNS16	
87	DNS14	

CONNECTOR DNS-EXTERNAL-AIR-TEMP-SNS

CAV	WIRE IDENT	CIRCUIT
1	DNS2	
2	DNS1	

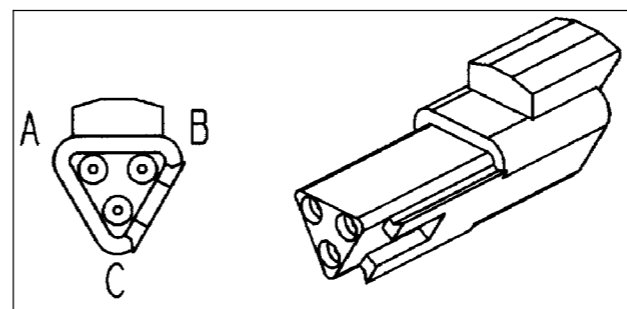
CONNECTOR DNS-HVAC-CAN1



225294C1

CAV	WIRE IDENT	CIRCUIT
A	DNS9	
B	DNS8	

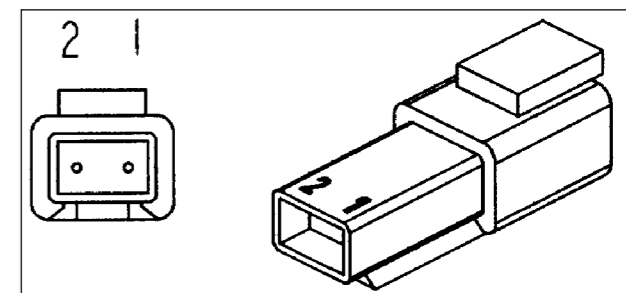
CONNECTOR DNS-HVAC1



225294C1

CAV	WIRE IDENT	CIRCUIT
A	DNS14	
B	DNS15	
C	DNS13	

CONNECTOR DNS-HVAC2



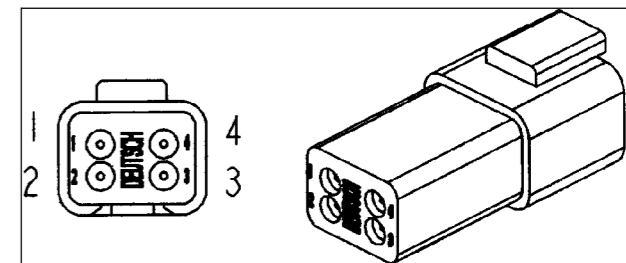
225315C1

CAV	WIRE IDENT	CIRCUIT
1	DNS36	
2	DNS35	

CONNECTOR DNS-INTERNAL-AIR-TEMP-SNS

CAV	WIRE IDENT	CIRCUIT
1	DNS4	
2	DNS3	
3	DNS17	
4	DNS5	

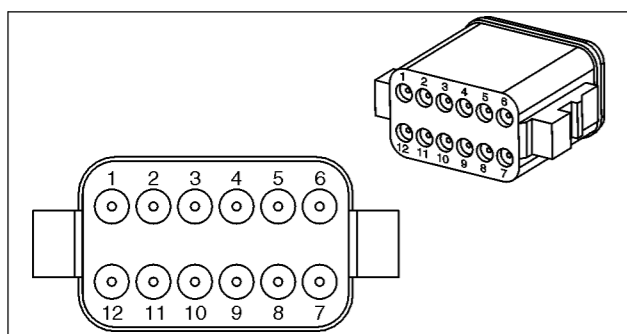
CONNECTOR DNS-NOT-USED



225326C1

CAV	WIRE IDENT	CIRCUIT
1	DNS12	
2	DNS11	
3	DNS10	

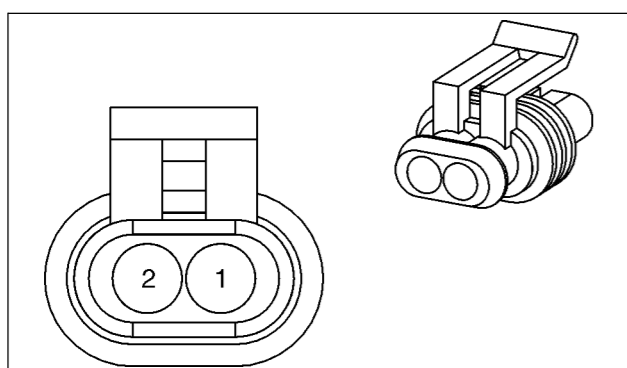
CONNECTOR FLSHR - FLASHER MODULE



225389C1

CAV	WIRE IDENT	CIRCUIT
1	1-DU	Flasher Module Power
2	45N-A	Flasher Optional Side Control
3	0-EH	Flasher Module Ground
4	0-EG	Flasher Module Ground
5		Not Used
6		Not Used
7	45R-E	Right Turn Signal
8	45L-D	Left Turn Signal
9	45A-A	Left Turn Switch Power
10	45B-A	Right Turn Switch Power
11	45H	Hazard Switch Power
12	45N-B	Flasher Optional Side Control

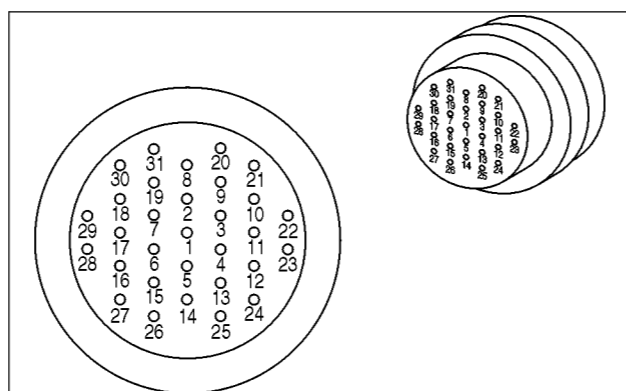
CONNECTOR FM - FILTER MAINTENANCE SWITCH



371614A1

CAV	WIRE IDENT	CIRCUIT
1	32F	Trans Filter Maint Sw
2	36R-B	Trans FM Switch Return

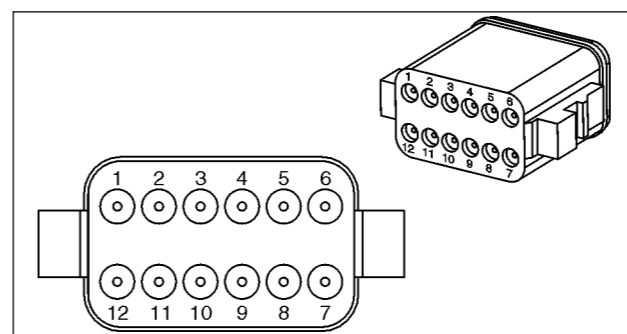
CONNECTOR FRONT - CAB FRONT CHASSIS



373358A1

CAV	WIRE IDENT	CIRCUIT
1	45L	Left Turn Signal
2	51B-D	Comfort Steering Sol Power
3	45R	Right Turn Signal
4		Not Used
5	18G-A	RH Position/Tail Fused Power
6	18F	LH Position/Tail Fused Power
7	18B	LH High Beam Fused Power
8	36B-A	Front Axle Temperature
9	0-AR	Front Axle Temp Sensor GND
10	36D-A	
11	54B	Height-RTT Control Signal
12	53B	RTD Control Signal
13	64	Horn Power
14	18D	LH Low Beam Fused Power
15	18E	RH Low Beam Fused Power
16	18C	RH High Beam Fused Power
17		Not Used
18		Not Used
19	53P-G	Pilot Control Relay Out
20	57	Pin Engage Sol Pwr
21	58-B	Ride Control Sol Pwr
21	58S-E	Ride Control Solenoid to Front Cab
22	1-AA	Brake Lamp Switch Power
23	44	Brake Lamp Control Power
24	52P	Park Brake Relay Out
25		Not Used
26	33P	Low Brake Pressure Warning
27	19A-A	Brake Declutch Sw Fused Pwr
28	25G	Brake Declutch Switch Control
29		Not Used
30		Not Used
31		Not Used

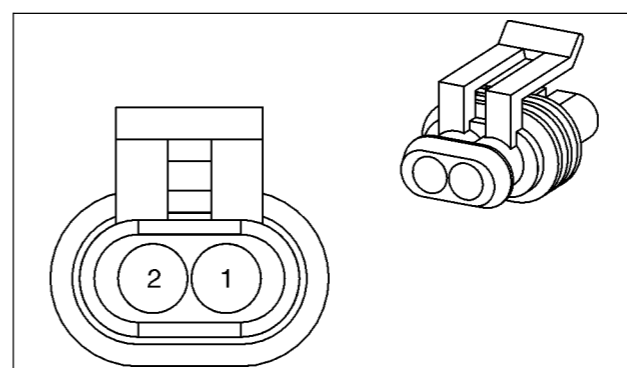
CONNECTOR FLSHR - FLASHER MODULE



225389C1

CAV	WIRE IDENT	CIRCUIT
1	1-DU	Flasher Module Power
2	45N-A	Flasher Optional Side Control
3	0-EH	Flasher Module Ground
4	0-EG	Flasher Module Ground
5		Not Used
6		Not Used
7	45R-E	Right Turn Signal
8	45L-D	Left Turn Signal
9	45A-A	Left Turn Switch Power
10	45B-A	Right Turn Switch Power
11	45H	Hazard Switch Power
12	45N-B	Flasher Optional Side Control

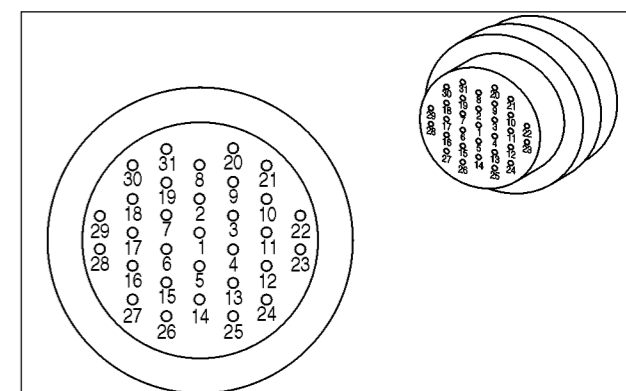
CONNECTOR FM - FILTER MAINTENANCE SWITCH



371614A1

CAV	WIRE IDENT	CIRCUIT
1	32F	Trans Filter Maint Sw
2	36R-B	Trans FM Switch Return

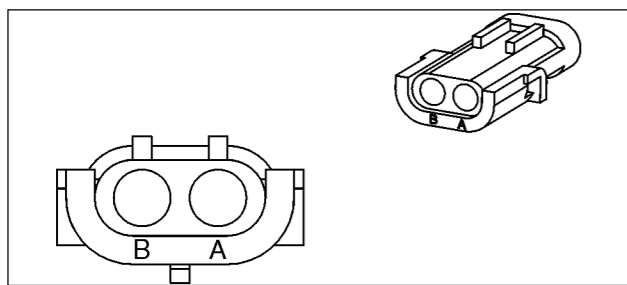
CONNECTOR FRONT - CAB FRONT CHASSIS



373358A1

CAV	WIRE IDENT	CIRCUIT
1	45L	Left Turn Signal
2	51B-D	Comfort Steering Sol Power
3	45R	Right Turn Signal
4		Not Used
5	18G-A	RH Position/Tail Fused Power
6	18F	LH Position/Tail Fused Power
7	18B	LH High Beam Fused Power
8	36B-A	Front Axle Temperature
9	0-AR	Front Axle Temp Sensor GND
10	36D-A	
11	54B	Height-RTT Control Signal
12	53B	RTD Control Signal
13	64	Horn Power
14	18D	LH Low Beam Fused Power
15	18E	RH Low Beam Fused Power
16	18C	RH High Beam Fused Power
17		Not Used
18		Not Used
19	53P-G	Pilot Control Relay Out
20	57	Pin Engage Sol Pwr
21	58-B	Ride Control Sol Pwr
21	58S-E	Ride Control Solenoid to Front Cab
22	1-AA	Brake Lamp Switch Power
23	44	Brake Lamp Control Power
24	52P	Park Brake Relay Out
25		Not Used
26	33P	Low Brake Pressure Warning
27	19A-A	Brake Declutch Sw Fused Pwr
28	25G	Brake Declutch Switch Control
29		Not Used
30		Not Used
31		Not Used

CONNECTOR LRRW - RH REAR WORK LAMP



245483C1

CAV	WIRE IDENT	CIRCUIT
A	42R-G	RH Rear Work Lamp Fused Pwr
B	0-MF	RH Rear Work Lamp Ground

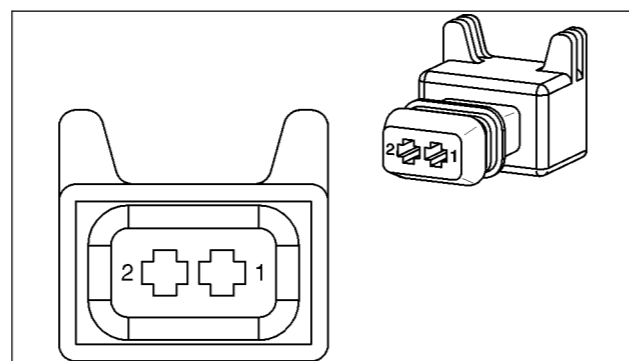
CONNECTOR P-A1-B+ POWER

CAV	WIRE IDENT	CIRCUIT
1	1-C	ECC BAT PWR

CONNECTOR P-A3-B+ POWER

CAV	WIRE IDENT	CIRCUIT
1	1CB-A	CAB CB Protected PWR

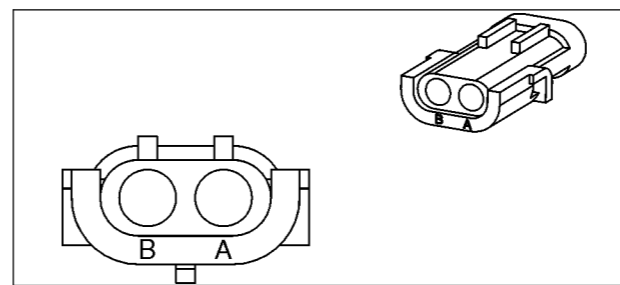
CONNECTOR PAF - AIR FILTER RESTRICTION SWITCH



291718A1

CAV	WIRE IDENT	CIRCUIT
1	31F	Air Filter Restriction Switch Signal
2	0-BY	Air Filter Restriction Switch Grnd

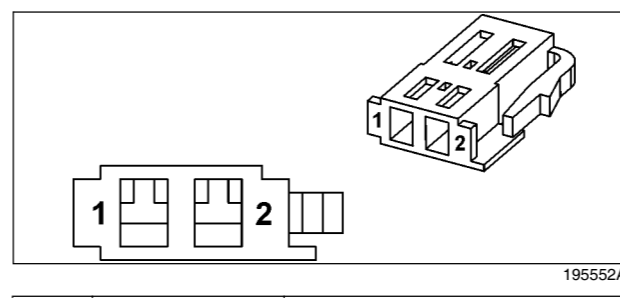
CONNECTOR LRRW - RH REAR WORK LAMP



245483C1

CAV	WIRE IDENT	CIRCUIT
A	42R-G	RH Rear Work Lamp Fused Pwr
B	0-MF	RH Rear Work Lamp Ground

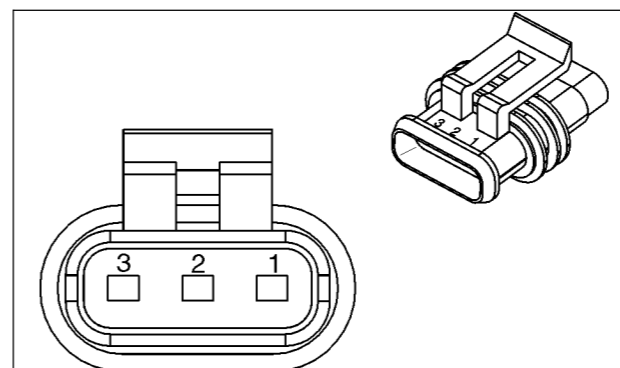
CONNECTOR LSPK - LEFT SPEAKER



195552A1

CAV	WIRE IDENT	CIRCUIT
1	65L	Left Speaker Signal
2	0-PA	Left Speaker Ground

CONNECTOR OSS - OUTPUT SPEED SENSOR



291719A1

CAV	WIRE IDENT	CIRCUIT
1	0-HE	Output Speed Ground
2	25D	Output Speed Signal
3	19A	Output Speed Fused Pwr

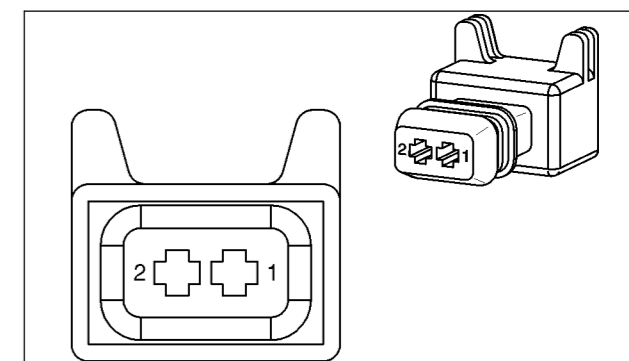
CONNECTOR P-A1-B+ POWER

CAV	WIRE IDENT	CIRCUIT
1	1-C	ECC BAT PWR

CONNECTOR P-A3-B+ POWER

CAV	WIRE IDENT	CIRCUIT
1	1CB-A	CAB CB Protected PWR

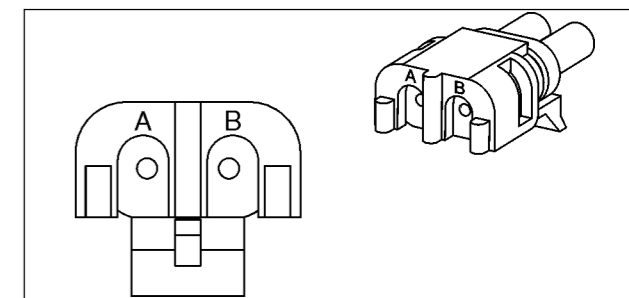
CONNECTOR PAF - AIR FILTER RESTRICTION SWITCH



291718A1

CAV	WIRE IDENT	CIRCUIT
1	31F	Air Filter Restriction Switch Signal
2	0-BY	Air Filter Restriction Switch Grnd

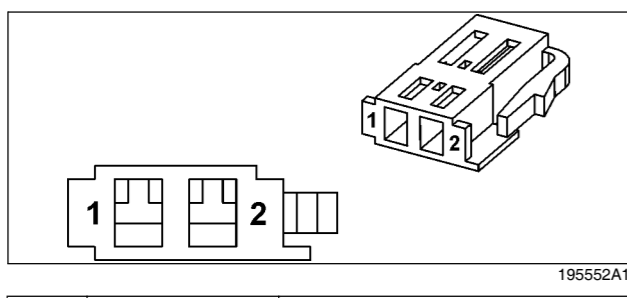
CONNECTOR PBD - BRAKE DECLUTCH PRESSURE SWITCH



245482C1

CAV	WIRE IDENT	CIRCUIT
A	19A-A	Brake Declutch Sw Fused Pwr
B	25G	Brake Declutch Switch Control

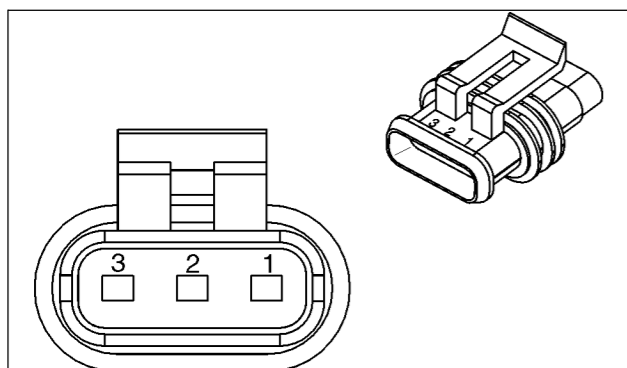
CONNECTOR LSPK - LEFT SPEAKER



195552A1

CAV	WIRE IDENT	CIRCUIT
1	65L	Left Speaker Signal
2	0-PA	Left Speaker Ground

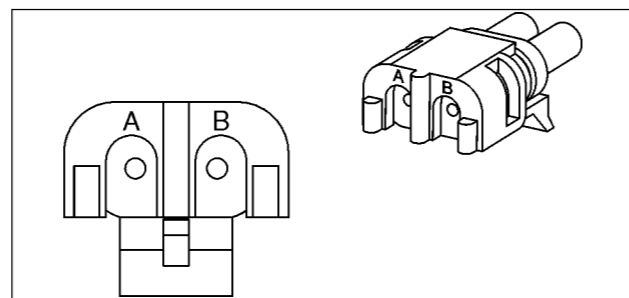
CONNECTOR OSS - OUTPUT SPEED SENSOR



291719A1

CAV	WIRE IDENT	CIRCUIT
1	0-HE	Output Speed Ground
2	25D	Output Speed Signal
3	19A	Output Speed Fused Pwr

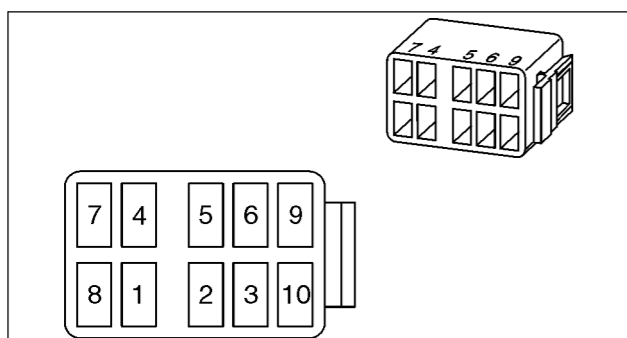
CONNECTOR PBD - BRAKE DECLUTCH PRESSURE SWITCH



245482C1

CAV	WIRE IDENT	CIRCUIT
A	19A-A	Brake Declutch Sw Fused Pwr
B	25G	Brake Declutch Switch Control

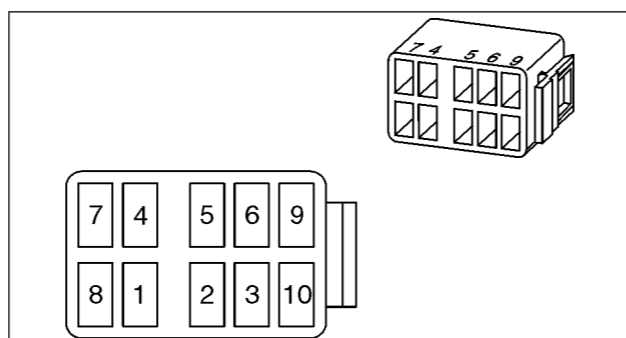
CONNECTOR SFC - FAN CONTROL SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	52J	Fan Control Switch Jumper
3	52-AU	Fan Reverse Auto
4	52J	Fan Control Switch Jumper
5	19P-C	Fan Reverse Switch Fused Pwr
6	52M	Fan Reverse Manual
7	0-B7	Back Light Ground
8	49-Q	Back Light Power
9		Not Used
10		Not Used

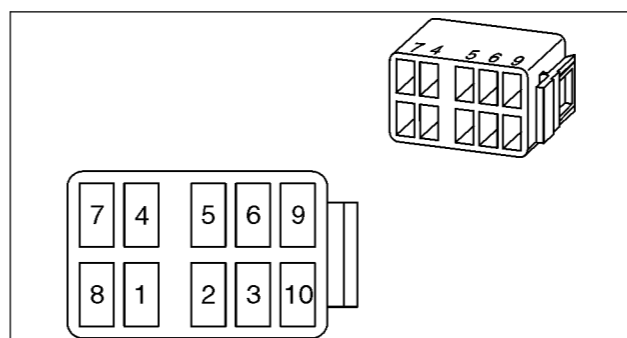
CONNECTOR SFNR - FNR SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1	26R-A	FNR Reverse Signal
2	26J	FNR Switch Jumper
3	26N-A	FNR Neutral Signal
4	26J	FNR Switch Jumper
5	19A-V	FNR Switch Fused Power
6	26F-A	FNR Forward Signal
7	32J-A	Trans Enable Indication
8	19A-G	FNR Switch Fused Power
9		Not Used
10		Not Used

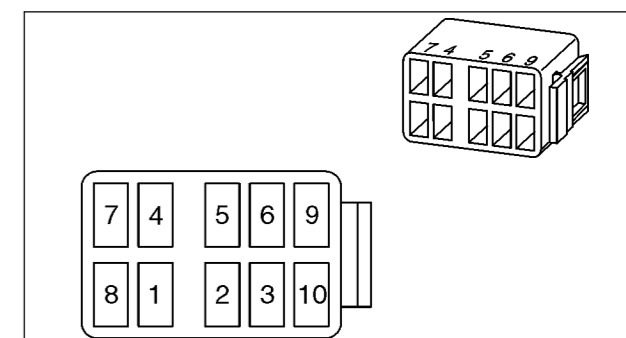
CONNECTOR SFC - FAN CONTROL SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	52J	Fan Control Switch Jumper
3	52-AU	Fan Reverse Auto
4	52J	Fan Control Switch Jumper
5	19P-C	Fan Reverse Switch Fused Pwr
6	52M	Fan Reverse Manual
7	0-B7	Back Light Ground
8	49-Q	Back Light Power
9		Not Used
10		Not Used

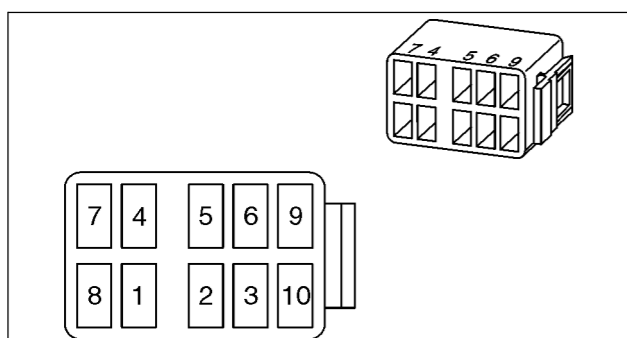
CONNECTOR SFNR - FNR SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1	26R-A	FNR Reverse Signal
2	26J	FNR Switch Jumper
3	26N-A	FNR Neutral Signal
4	26J	FNR Switch Jumper
5	19A-V	FNR Switch Fused Power
6	26F-A	FNR Forward Signal
7	32J-A	Trans Enable Indication
8	19A-G	FNR Switch Fused Power
9		Not Used
10		Not Used

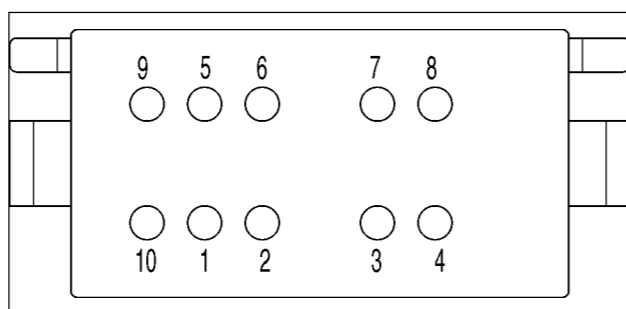
CONNECTOR SFL - RETURN-TO-TRAVEL SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1	55A-B	RTT/Float Switch Power
2	53P-B	Pilot Control Relay Out
3	55A-C	RTT/Float Switch Power
4	0-29	RTT/Float Ground
5	55B	RTT Float Switch Control
6	54B-C	HC-RTT Control Signal
7	0-B2	Back Light Ground
8	49-K	Back Light Power
9		Not Used
10		Not Used

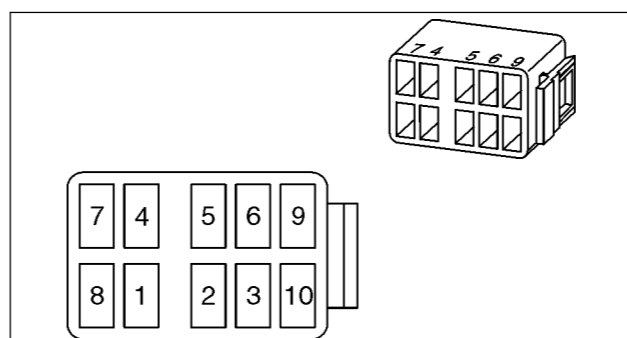
CONNECTOR SFWW - FRONT WIPER AND WASHER SWITCH



87345132

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	0-DT	Front Wiper/Washer Sw Gnd
3	63LC	Front Wiper LS Relay Control
4		Not Used
5	19J-B	INT Wiper/Washer Sw Fused Pwr
6		Not Used
7	63W	Front Washer Pump
8	49-T	Back Light Power
9	63HC	Front Wiper HS Relay Control
10		Not Used

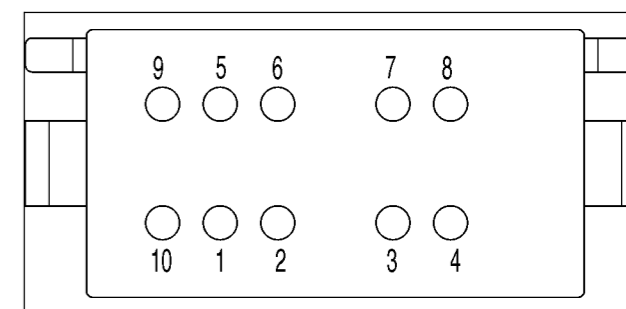
CONNECTOR SFL - RETURN-TO-TRAVEL SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1	55A-B	RTT/Float Switch Power
2	53P-B	Pilot Control Relay Out
3	55A-C	RTT/Float Switch Power
4	0-29	RTT/Float Ground
5	55B	RTT Float Switch Control
6	54B-C	HC-RTT Control Signal
7	0-B2	Back Light Ground
8	49-K	Back Light Power
9		Not Used
10		Not Used

CONNECTOR SFWW - FRONT WIPER AND WASHER SWITCH

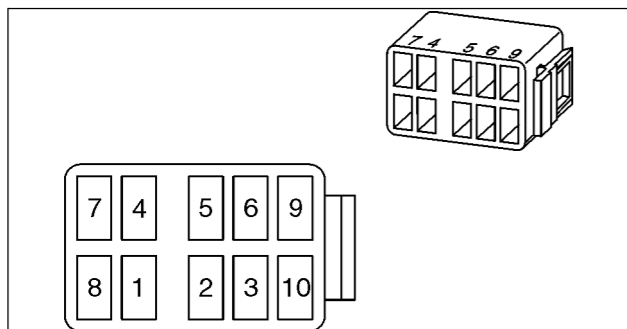


87345132

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	0-DT	Front Wiper/Washer Sw Gnd
3	63LC	Front Wiper LS Relay Control
4		Not Used
5	19J-B	INT Wiper/Washer Sw Fused Pwr
6		Not Used
7	63W	Front Washer Pump
8	49-T	Back Light Power
9	63HC	Front Wiper HS Relay Control
10		Not Used

CAV	WIRE IDENT	CIRCUIT
8	49-H	Back Light Power
9	32J-C	Trans Enable Indiction
10	19A-E	Trans Enable Sw Fused Pwr

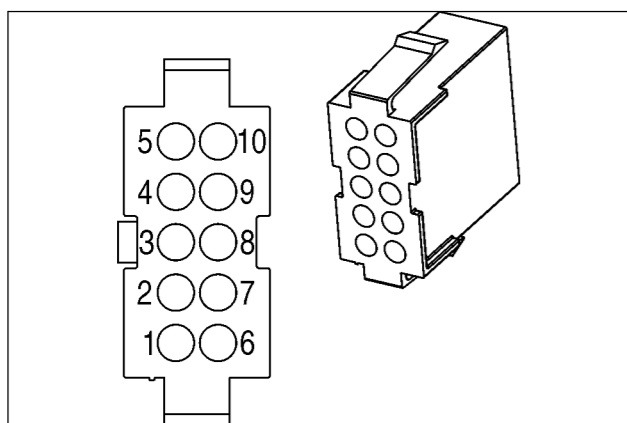
CONNECTOR SWL - WORK LIGHTS SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	42-A	Work Lights Fused Power
3	42FS	Front Work Lights Switch Power
4		Not Used
5	42-B	Work Lights Fused Power
6	42RS	Rear Work Lights Switch Power
7	0-B14	Back Light Ground
8	49-A	Back Light Power
9		Not Used
10		Not Used

CONNECTOR SW-PD - SWITCH PAD

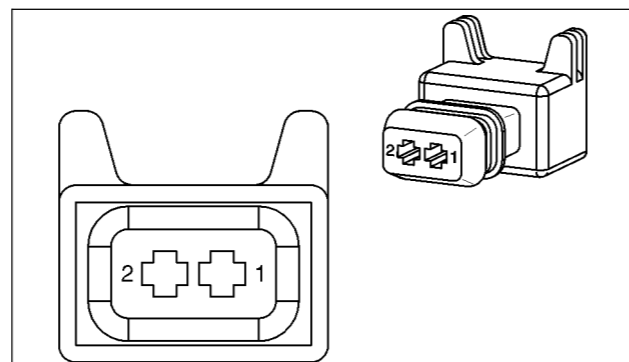


87552623

CAV	WIRE IDENT	CIRCUIT
1	41H-D	High Beam Power
2	41T-D	Position Lights Switch Pwr
3	42C-E	Front Work Light Fused Pwr
4	31H-A	Hydraulic Filter Rest Sw Signal

CAV	WIRE IDENT	CIRCUIT
5	31F-A	Air Filter Rest Switch Signal
6		Not Used
7	CAN-HF	CAN High
8	CAN-LF	CAN Low
9	17P-A	Switch Pad Pwr From AIC Pwr
10	0-B28	Switch Pad Ground

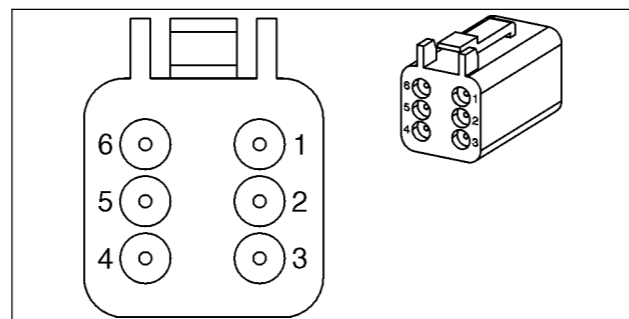
CONNECTOR TCOT - TORQUE CONVERTER OUTPUT SENDER



291718A1

CAV	WIRE IDENT	CIRCUIT
1	36G	TCO Temperature Signal
2	36R-D	TCO Temperature Return

CONNECTOR TDM - TIME DELAY MODULE

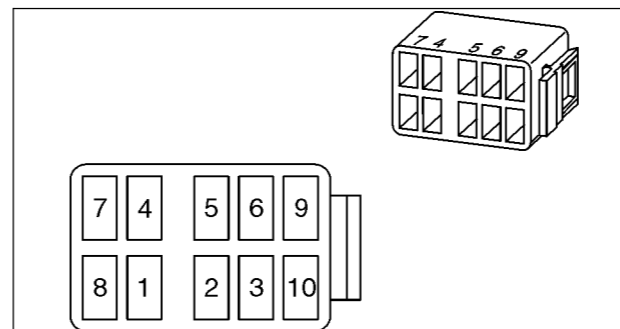


225351C1

CAV	WIRE IDENT	CIRCUIT
1	13D	Time Delay Relay Ctrl Power
2	1DN	Time Delay Fused Power
3	0-DC	Time Delay Module Ground
4	43S-D	Time Delay Mod Door Sw Reset
5	13K-A	Ignition Switch Power
6		Not Used

CAV	WIRE IDENT	CIRCUIT
8	49-H	Back Light Power
9	32J-C	Trans Enable Indiction
10	19A-E	Trans Enable Sw Fused Pwr

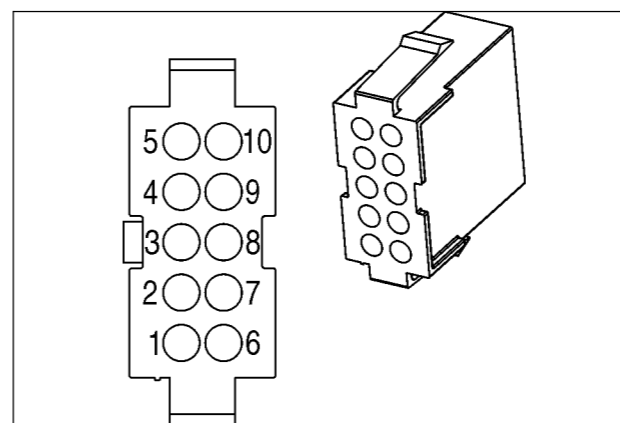
CONNECTOR SWL - WORK LIGHTS SWITCH



382391A1

CAV	WIRE IDENT	CIRCUIT
1		Not Used
2	42-A	Work Lights Fused Power
3	42FS	Front Work Lights Switch Power
4		Not Used
5	42-B	Work Lights Fused Power
6	42RS	Rear Work Lights Switch Power
7	0-B14	Back Light Ground
8	49-A	Back Light Power
9		Not Used
10		Not Used

CONNECTOR SW-PD - SWITCH PAD

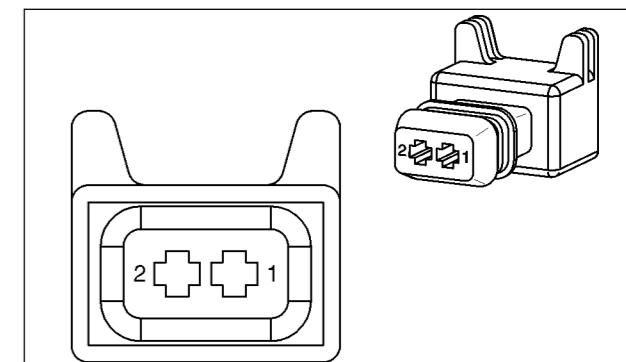


87552623

CAV	WIRE IDENT	CIRCUIT
1	41H-D	High Beam Power
2	41T-D	Position Lights Switch Pwr
3	42C-E	Front Work Light Fused Pwr
4	31H-A	Hydraulic Filter Rest Sw Signal

CAV	WIRE IDENT	CIRCUIT
5	31F-A	Air Filter Rest Switch Signal
6		Not Used
7	CAN-HF	CAN High
8	CAN-LF	CAN Low
9	17P-A	Switch Pad Pwr From AIC Pwr
10	0-B28	Switch Pad Ground

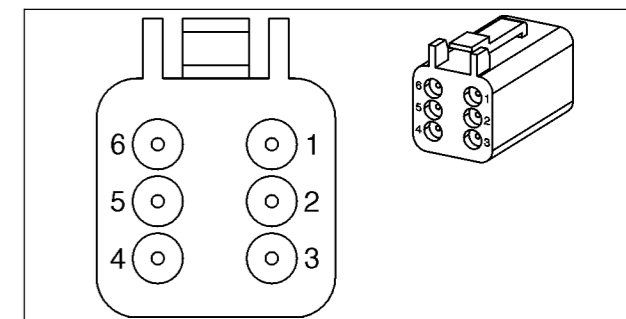
CONNECTOR TCOT - TORQUE CONVERTER OUTPUT SENDER



291718A1

CAV	WIRE IDENT	CIRCUIT
1	36G	TCO Temperature Signal
2	36R-D	TCO Temperature Return

CONNECTOR TDM - TIME DELAY MODULE



225351C1

CAV	WIRE IDENT	CIRCUIT
1	13D	Time Delay Relay Ctrl Power
2	1DN	Time Delay Fused Power
3	0-DC	Time Delay Module Ground
4	43S-D	Time Delay Mod Door Sw Reset
5	13K-A	Ignition Switch Power
6		Not Used

BATTERY TEST

NOTE: To correctly test a battery, do each part of the battery test until you know the condition of the battery.

Visual Checks

1. Make sure the cable connections are clean and tight. Clean foreign material from the top of the battery.
2. Inspect the battery case, battery posts, and cables for damage.
3. Check the electrolyte level. See Page 4.
4. If you added water to the battery, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte.

Specific Gravity Check

A hydrometer is used to check the specific gravity (weight) of the electrolyte. The specific gravity is an indication of the level of charge for each cell.

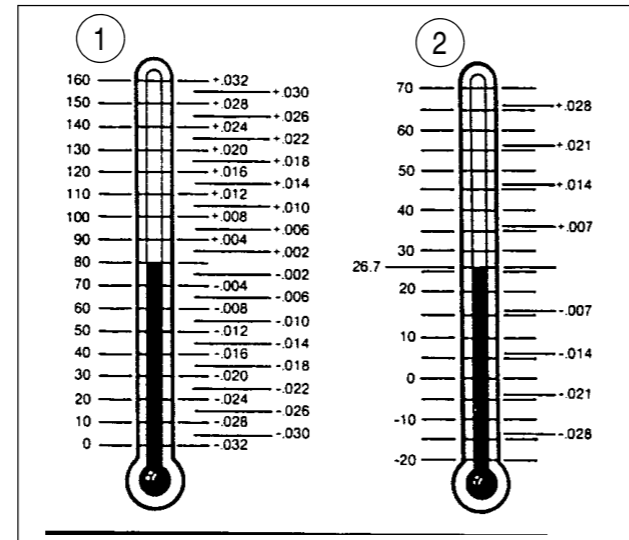
Hydrometers are made to show the correct specific gravity when the temperature of the electrolyte is 26.7°C (80°F).

When you check the specific gravity, you must know the temperature of the electrolyte. If your hydrometer does not have a thermometer, get a thermometer to check the temperature of the electrolyte. The thermometer must indicate a high temperature of at least 52°C (120°F).

1. Remove enough electrolyte from a cell so that the float is free in the tube.

NOTE: If the specific gravity cannot be checked without first adding water to the cell, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte. Then check the specific gravity.

2. Read the float.
3. Read the thermometer. If the reading is above 26.7°C (80°F) add specific gravity points to the reading for specific gravity. If the reading is below 26.5°C (80°F) subtract specific gravity points from the reading for specific gravity. See the following illustration and add or subtract specific gravity points as needed.



B790863

1. TEMPERATURE IN F
2. TEMPERATURE IN C

SPECIFIC GRAVITY CHART

4. Make a record of the corrected specific gravity reading for each cell.
5. If the difference between the high reading and the low reading is 0.050 or more, charge the battery and check the specific gravity again. If after charging, the difference is still 0.050 or more, install a new battery.
6. The corrected specific gravity reading shows the level of charge for the cell. The level of charge must be at least 75% in each of the cells. In maintenance free batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.240 or higher. In all other batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.230 or higher.
7. If the difference between the high reading and the low reading is less than 0.050, and the level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.
8. If the difference between the high reading and the low reading is less than 0.050, but the level of charge is less than 75% in any of the cells, charge the battery and check the specific gravity again. If after charging:
 - A. The level of charge is less than 75% in any of the cells, discard the battery.
 - B. The level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.

BATTERY TEST

NOTE: To correctly test a battery, do each part of the battery test until you know the condition of the battery.

Visual Checks

1. Make sure the cable connections are clean and tight. Clean foreign material from the top of the battery.
2. Inspect the battery case, battery posts, and cables for damage.
3. Check the electrolyte level. See Page 4.
4. If you added water to the battery, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte.

Specific Gravity Check

A hydrometer is used to check the specific gravity (weight) of the electrolyte. The specific gravity is an indication of the level of charge for each cell.

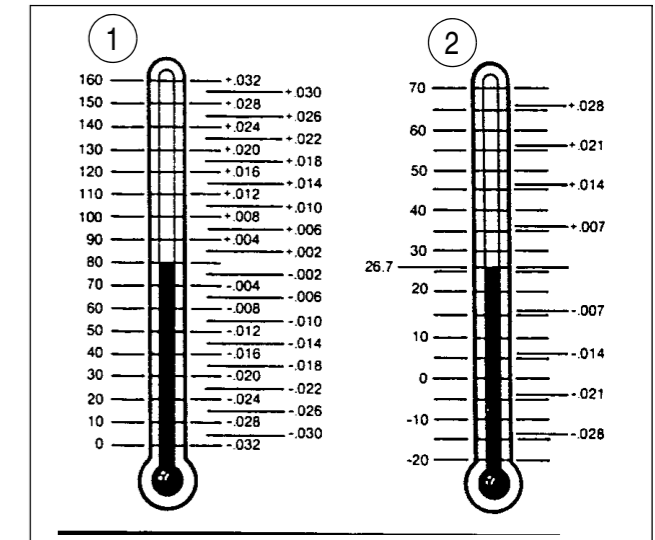
Hydrometers are made to show the correct specific gravity when the temperature of the electrolyte is 26.7°C (80°F).

When you check the specific gravity, you must know the temperature of the electrolyte. If your hydrometer does not have a thermometer, get a thermometer to check the temperature of the electrolyte. The thermometer must indicate a high temperature of at least 52°C (120°F).

1. Remove enough electrolyte from a cell so that the float is free in the tube.

NOTE: If the specific gravity cannot be checked without first adding water to the cell, the battery must be charged for 15 minutes at 15 to 25 amperes to mix the water with the electrolyte. Then check the specific gravity.

2. Read the float.
3. Read the thermometer. If the reading is above 26.7°C (80°F) add specific gravity points to the reading for specific gravity. If the reading is below 26.5°C (80°F) subtract specific gravity points from the reading for specific gravity. See the following illustration and add or subtract specific gravity points as needed.



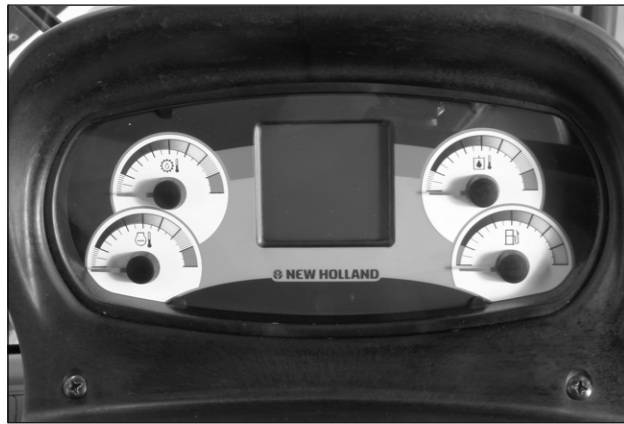
B790863

1. TEMPERATURE IN F
2. TEMPERATURE IN C

SPECIFIC GRAVITY CHART

4. Make a record of the corrected specific gravity reading for each cell.
5. If the difference between the high reading and the low reading is 0.050 or more, charge the battery and check the specific gravity again. If after charging, the difference is still 0.050 or more, install a new battery.
6. The corrected specific gravity reading shows the level of charge for the cell. The level of charge must be at least 75% in each of the cells. In maintenance free batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.240 or higher. In all other batteries the level of charge is at least 75% if the corrected specific gravity reading is 1.230 or higher.
7. If the difference between the high reading and the low reading is less than 0.050, and the level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.
8. If the difference between the high reading and the low reading is less than 0.050, but the level of charge is less than 75% in any of the cells, charge the battery and check the specific gravity again. If after charging:
 - A. The level of charge is less than 75% in any of the cells, discard the battery.
 - B. The level of charge is at least 75% in all of the cells, do the Capacity (Load) Test.

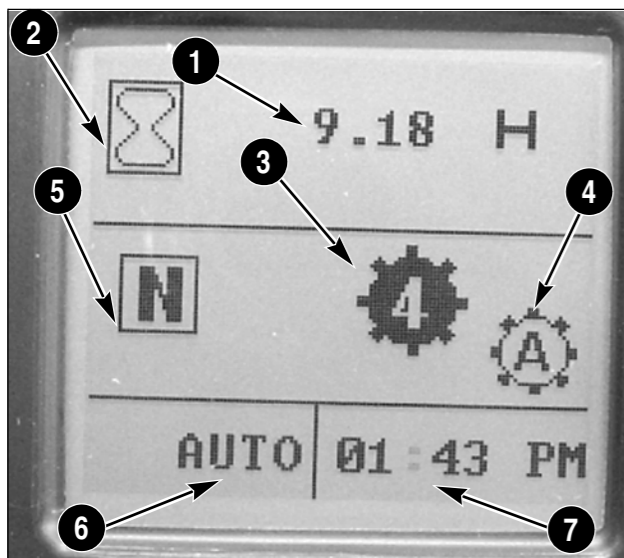
LCD Multi-function Display



BD06H036

1. LCD MULTI-FUNCTION DISPLAY

The LCD Multi-Function Display is located at the center of the modular dashboard. On start up the cluster will flash the instructional lamps and the LCD Multi-Display will flash, NEW HOLLAND, with the machine model.



BD06F185

LCD MULTI-FUNCTION DISPLAY

Information will be displayed in different zones on the LCD, as directed by the operator or machine. In **most** situations the operator or technician will be given specific information to follow if conditions are not correct.

1. In the example, above, the machine hours are displayed. Machine hours will always be displayed briefly, on start up. After, the machine is started, the display will show engine rpm's. After, beginning travel, the machine will display travel speed, if default settings were not changed by the operator.

2. This example, shows that the Transmission Control Lever is in Neutral. The display will show Forward, Neutral, or Reverse, depending on where the Directional Control Lever is positioned.

NOTE: Forward and Reverse will blink if the transmission clutches are disconnected.

3. This example shows the maximum gear allowed when in Automatic mode. If display is blank the Manual mode has been selected.

4. This example shows the current transmission mode that has been selected.

A. If the Transmission is operating normally it will display either

- **A** - Automatic
 - **M** - Manual operation.
- B. If the Transmission is not operating normally the display will show
- **C** - Substitute Clutch.
 - **L** - Limp Home.
 - **S** - Transmission Shutdown.
 - **U** - TCU Shutdown.

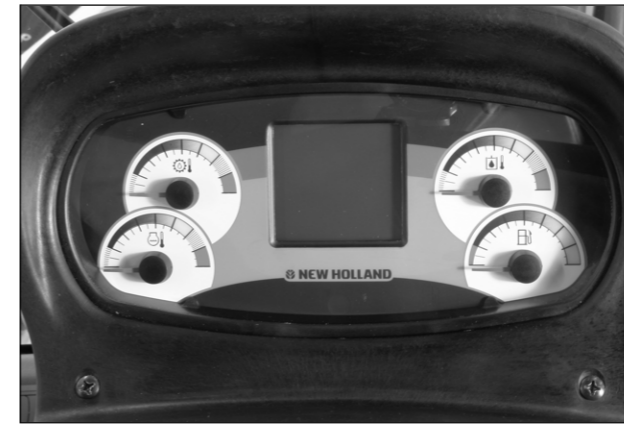
5. This example (not displayed) will show the transmission clutches disengaged, if the Park Brake is **OFF**.

6. This example shows the Power Boost Status.

- **MAX** - Maximum Power.
- **STD** - Normal/Standard mode of Operation.
- **AUTO** - Switches automatically between Maximum and Standard Power.
- **ECO** - Limited Power for fuel efficiency.

7. This example will show the Time in either 12 hour or 24 hour.

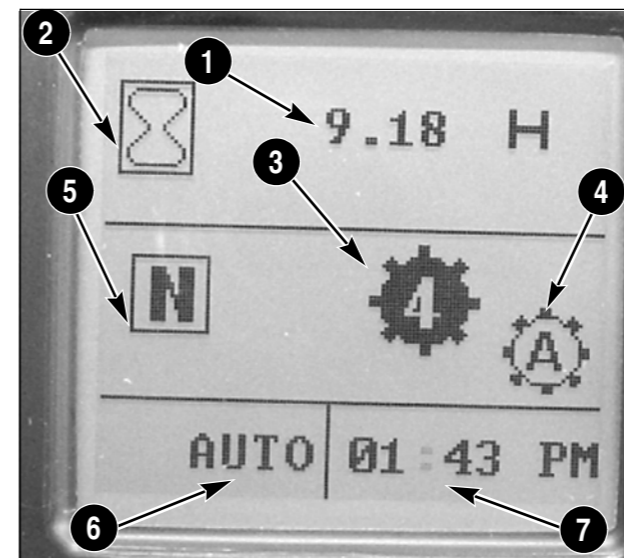
LCD Multi-function Display



BD06H036

1. LCD MULTI-FUNCTION DISPLAY

The LCD Multi-Function Display is located at the center of the modular dashboard. On start up the cluster will flash the instructional lamps and the LCD Multi-Display will flash, NEW HOLLAND, with the machine model.



BD06F185

LCD MULTI-FUNCTION DISPLAY

Information will be displayed in different zones on the LCD, as directed by the operator or machine. In **most** situations the operator or technician will be given specific information to follow if conditions are not correct.

1. In the example, above, the machine hours are displayed. Machine hours will always be displayed briefly, on start up. After, the machine is started, the display will show engine rpm's. After, beginning travel, the machine will display travel speed, if default settings were not changed by the operator.

2. This example, shows that the Transmission Control Lever is in Neutral. The display will show Forward, Neutral, or Reverse, depending on where the Directional Control Lever is positioned.

NOTE: Forward and Reverse will blink if the transmission clutches are disconnected.

3. This example shows the maximum gear allowed when in Automatic mode. If display is blank the Manual mode has been selected.

4. This example shows the current transmission mode that has been selected.

A. If the Transmission is operating normally it will display either

- **A** - Automatic
 - **M** - Manual operation.
- B. If the Transmission is not operating normally the display will show
- **C** - Substitute Clutch.
 - **L** - Limp Home.
 - **S** - Transmission Shutdown.
 - **U** - TCU Shutdown.

5. This example (not displayed) will show the transmission clutches disengaged, if the Park Brake is **OFF**.

6. This example shows the Power Boost Status.

- **MAX** - Maximum Power.
- **STD** - Normal/Standard mode of Operation.
- **AUTO** - Switches automatically between Maximum and Standard Power.
- **ECO** - Limited Power for fuel efficiency.

7. This example will show the Time in either 12 hour or 24 hour.

VEHICLE FAULT CODES

CODE	DEFINITION	POSSIBLE STEPS FOR REPAIR
1310	Hydraulic filter blocked	Change filter
1311	Engine air filter blocked	Change filter
1312	Hydraulic oil temperature above normal	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check fan operation 4. Check cooling core for clogs
1313	Hydraulic oil temperature to high	
1314	Transmission oil temperature above normal	
1315	Transmission oil temperature to high	
1316	Brake pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check brake system pressure 4. Check brake system for leaks
1317	Steering pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check steering system for operation 4. Check steering system for leaks
1318	Engine coolant temperature above normal	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check fan operation 4. Check radiator core for clogs
1319	Engine coolant temperature high - critical	
1320	Engine oil pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Check engine oil level 3. Check pressure sender unit
1321	Engine oil pressure below normal	
1322	Engine oil pressure above normal	<ol style="list-style-type: none"> 1. Check engine oil for proper type 2. Check pressure sender unit
1323	Battery voltage low	Check charging system
1324	Battery voltage high	
1325	Oil temperature too high	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check sending unit
1326	Coolant level low	Fill radiator level
1327	Moved during accelerated idle	No information available at time of print.
1328	Moving when shifting to low idle	No information available at time of print.
1331	Electrical charging system voltage low - critical level	<ol style="list-style-type: none"> 1. Stop machine operations 2. Check charging system
1332	Water detected in fuel	Drain fuel filter
1333	Engine overspeed	Check engine speeds
1334	Intake manifold temperature high - critical	Check for defective or clogged after cooler
1335	Brake pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check brake system pressure 4. Check brake system for leaks

VEHICLE FAULT CODES

CODE	DEFINITION	POSSIBLE STEPS FOR REPAIR
1310	Hydraulic filter blocked	Change filter
1311	Engine air filter blocked	Change filter
1312	Hydraulic oil temperature above normal	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check fan operation 4. Check cooling core for clogs
1313	Hydraulic oil temperature to high	
1314	Transmission oil temperature above normal	
1315	Transmission oil temperature to high	
1316	Brake pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check brake system pressure 4. Check brake system for leaks
1317	Steering pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check steering system for operation 4. Check steering system for leaks
1318	Engine coolant temperature above normal	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check fan operation 4. Check radiator core for clogs
1319	Engine coolant temperature high - critical	
1320	Engine oil pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Check engine oil level 3. Check pressure sender unit
1321	Engine oil pressure below normal	
1322	Engine oil pressure above normal	<ol style="list-style-type: none"> 1. Check engine oil for proper type 2. Check pressure sender unit
1323	Battery voltage low	Check charging system
1324	Battery voltage high	
1325	Oil temperature too high	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check sending unit
1326	Coolant level low	Fill radiator level
1327	Moved during accelerated idle	No information available at time of print.
1328	Moving when shifting to low idle	No information available at time of print.
1331	Electrical charging system voltage low - critical level	<ol style="list-style-type: none"> 1. Stop machine operations 2. Check charging system
1332	Water detected in fuel	Drain fuel filter
1333	Engine overspeed	Check engine speeds
1334	Intake manifold temperature high - critical	Check for defective or clogged after cooler
1335	Brake pressure too low	<ol style="list-style-type: none"> 1. Stop machine operations 2. Run engine at 1500 rpm 3. Check brake system pressure 4. Check brake system for leaks

CODE	DEFINITION	POSSIBLE STEPS FOR REPAIR
4276	Slippage at clutch K4	<ol style="list-style-type: none"> 1. Check pressure at clutch K4. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4277	Slippage at clutch KV	<ol style="list-style-type: none"> 1. Check pressure at clutch KV. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4278	Slippage at clutch KR	<ol style="list-style-type: none"> 1. Check pressure at clutch KR. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4279	Oil temperature at valve body is above limit	<ol style="list-style-type: none"> 1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area. 4. Cool down machine. 5. Check oil level. 6. Check temperature sensor.
4281	Engine speed is measured above 5,000 rpm for 0.2 seconds	Check engine speed sensor
4282	TCU sensed a voltage at oil filter maintenance switch out of the allowed range (dirty filter)	<ol style="list-style-type: none"> 1. Check oil filter. 2. Check wiring from TCU to filter maintenance switch. 3. Check filter maintenance switch (measure resistance).
4284	Overspeed output	No information available at time of print.
4288	Engine torque or engine power overload	No information available at time of print.
4289	Transmission output torque overload	No information available at time of print.
4290	Transmission input torque overload	No information available at time of print.
4291	Oil temperature at converter output is above limit	<ol style="list-style-type: none"> 1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area. 4. Cool down machine. 5. Check oil level. 6. Check temperature sensor.
4292	Joystick status indicator short-circuit to ground	<ol style="list-style-type: none"> 1. Check the cables from the TCU to the joystick. 2. Check the connectors from the TCU to the joystick. 3. Check the resistance of the joystick.

CODE	DEFINITION	POSSIBLE STEPS FOR REPAIR
4276	Slippage at clutch K4	<ol style="list-style-type: none"> 1. Check pressure at clutch K4. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4277	Slippage at clutch KV	<ol style="list-style-type: none"> 1. Check pressure at clutch KV. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4278	Slippage at clutch KR	<ol style="list-style-type: none"> 1. Check pressure at clutch KR. 2. Check main pressure in the system. 3. Check signal at internal speed sensor. 4. Check signal at output speed sensor. 5. Replace clutch.
4279	Oil temperature at valve body is above limit	<ol style="list-style-type: none"> 1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area. 4. Cool down machine. 5. Check oil level. 6. Check temperature sensor.
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4288	Engine torque or engine power overload	No information available at time of print.
4289	Transmission output torque overload	No information available at time of print.
4290	Transmission input torque overload	No information available at time of print.
4291	Oil temperature at converter output is above limit	<ol style="list-style-type: none"> 1. A critical stop function warning has occurred. 2. Red stop indicator comes on and continuous buzzer sounds. 3. Stop machine and perform required service on the critical area. 4. Cool down machine. 5. Check oil level. 6. Check temperature sensor.
4292	Joystick status indicator short-circuit to ground	<ol style="list-style-type: none"> 1. Check the cables from the TCU to the joystick. 2. Check the connectors from the TCU to the joystick. 3. Check the resistance of the joystick.

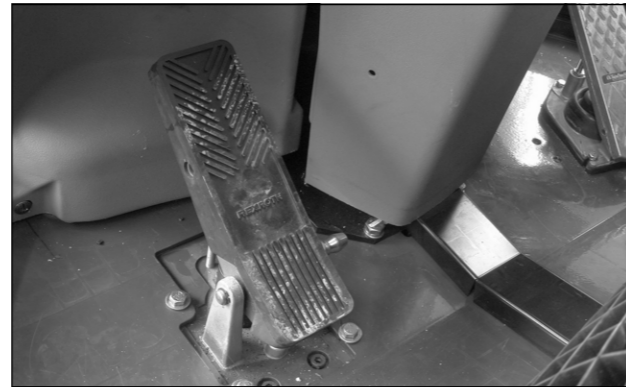
STEP 16



BD06J109

Remove the spacer block from the slot in the floor mat.

STEP 19



BD06J112

Pull floor mat away from the column and remove the lower trim from the column.

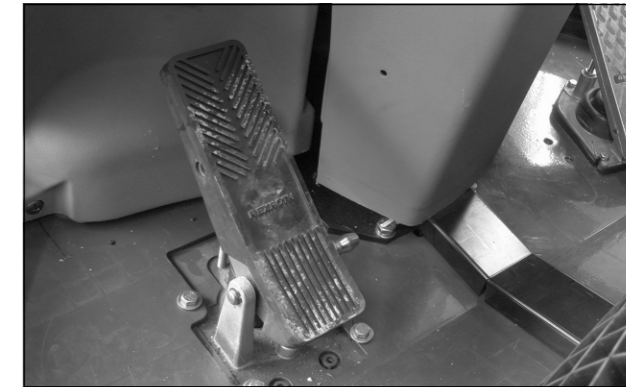
STEP 16



BD06J109

Remove the spacer block from the slot in the floor mat.

STEP 19



BD06J112

Pull floor mat away from the column and remove the lower trim from the column.

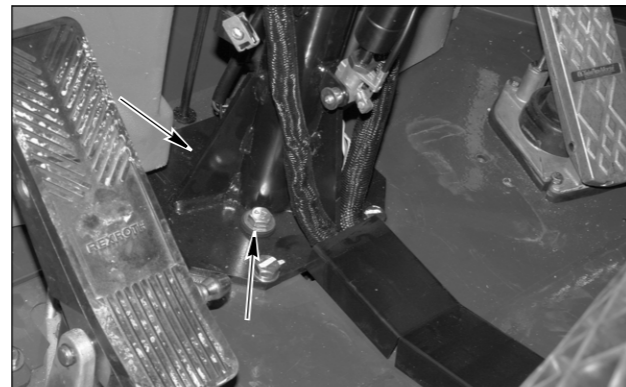
STEP 17



BD06J110

Remove the snap ring from the pin, remove the right pedal.

STEP 20



BD06J113

Remove the four mounting bolts for the steering control valve.

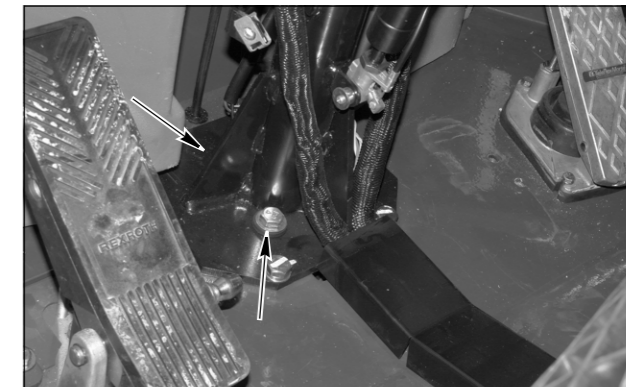
STEP 17



BD06J110

Remove the snap ring from the pin, remove the right pedal.

STEP 20



BD06J113

Remove the four mounting bolts for the steering control valve.

STEP 18



BD06J111

Remove the two mounting screws from the lower console trim.

STEP 18

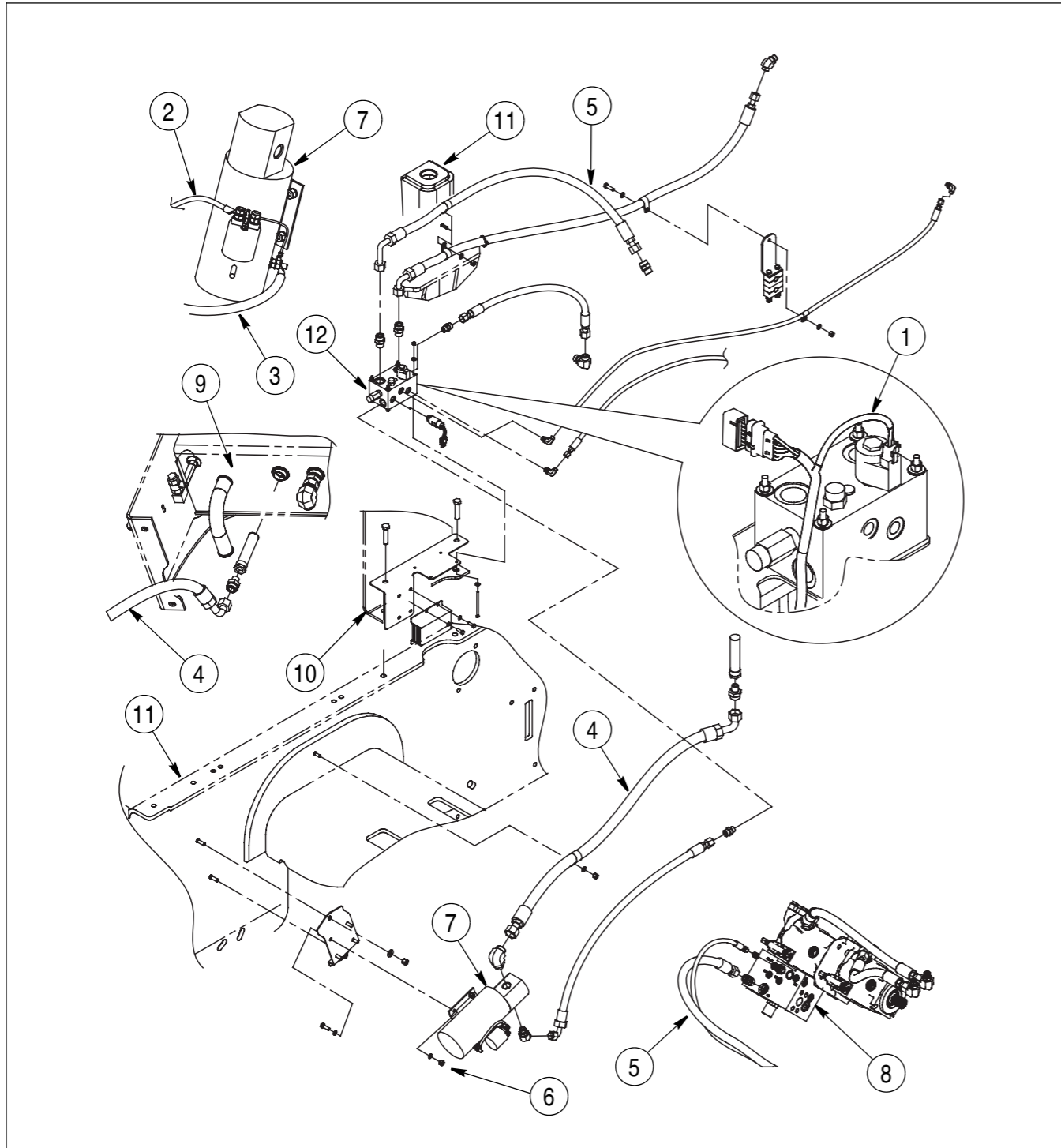


BD06J111

Remove the two mounting screws from the lower console trim.

IMPORTANT: Have an assistant support and remove the valve while removing the mounting bolts.

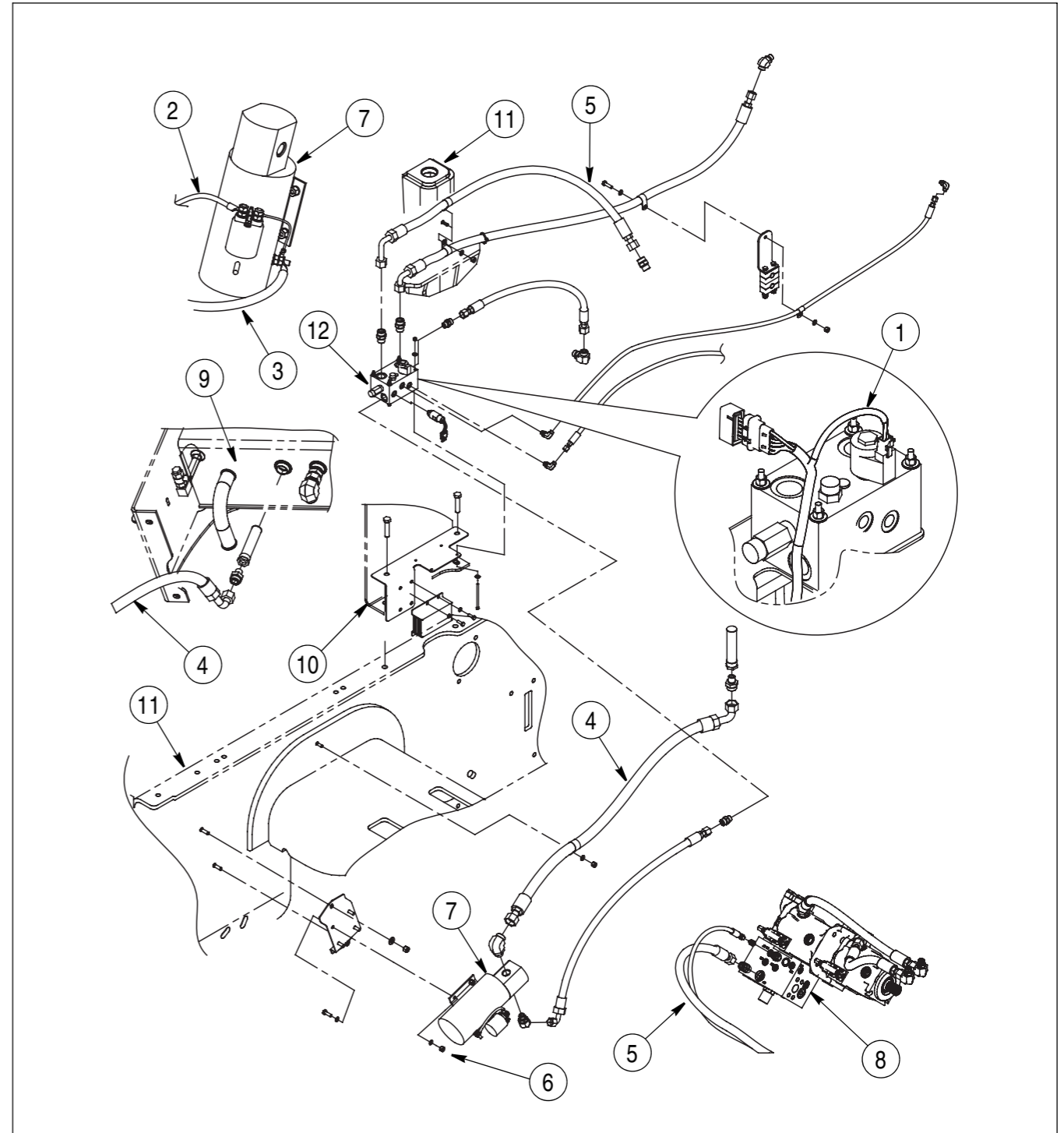
IMPORTANT: Have an assistant support and remove the valve while removing the mounting bolts.



W270-4R016

- | | | |
|-------------------|--------------------------------------|---------------------------------|
| 1. WIRING HARNESS | 5. PRESSURE TUBE | 9. TANK BOTTOM |
| 2. POSITIVE CABLE | 6. NUT (4) | 10. HYDRAULIC TANK |
| 3. GROUND CABLE | 7. AUXILIARY STEERING PUMP AND MOTOR | 11. REAR CHASSIS |
| 4. SUCTION HOSE | 8. AUXILIARY STEERING PRIORITY VALVE | 12. MANIFOLD AUXILIARY STEERING |

AUXILIARY STEERING PUMP AND MOTOR ILLUSTRATION



W270-4R016

- | | | |
|-------------------|--------------------------------------|---------------------------------|
| 1. WIRING HARNESS | 5. PRESSURE TUBE | 9. TANK BOTTOM |
| 2. POSITIVE CABLE | 6. NUT (4) | 10. HYDRAULIC TANK |
| 3. GROUND CABLE | 7. AUXILIARY STEERING PUMP AND MOTOR | 11. REAR CHASSIS |
| 4. SUCTION HOSE | 8. AUXILIARY STEERING PRIORITY VALVE | 12. MANIFOLD AUXILIARY STEERING |

AUXILIARY STEERING PUMP AND MOTOR ILLUSTRATION

STEERING PRIORITY VALVE

NOTE: The loader/steering pump differential pressure must be properly adjusted before doing this test. Refer to Section 8002 Testing and Adjusting the Loader/Steering Pump differential Pressure.

Pressure Setting Test



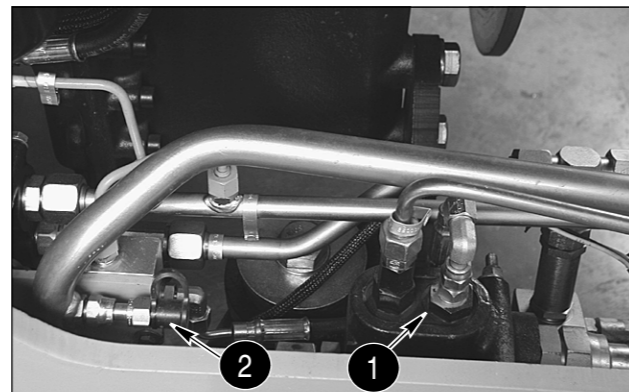
W270-1R006

1. ARTICULATION LOCK

1. Install articulation lock.

IMPORTANT: When performing the following pressure check and adjustment, the articulation lock must be installed. Use caution when working in or near the articulation area.

2. Make sure that the temperature of the hydraulic oil is at least 54° C (129° F).
3. To measure the temperature of the oil using the instrument panel:
 - A. Press the program switch (left side of the program/reset switch).
 - B. Press the up count switch to function 008.
 - C. Return the program switch to the OFF (center) position.
4. Apply the parking brake.
5. Start and run the engine at full throttle.
6. Lower the lift arms and hold the control lever in the FLOAT position.
7. Hold the bucket control lever in the rollback position.
8. Continue holding until the specified temperature of the oil is reached.
9. Stop the engine.
10. Remove the cap on the hydraulic reservoir to release any pressure in the hydraulic system.



BD03A086

1. STEERING PRIORITY VALVE
2. PUMP PRESSURE TEST PORT

11. Remove the dust cap from the test port (2).
12. Connect a 345 bar (5000 psi) pressure gauge to the test port (2).

NOTE: Make sure when you connect the pressure gauge that you do so in a manner that you can read the pressure gauge while sitting in the operators seat.

STEERING PRIORITY VALVE

NOTE: The loader/steering pump differential pressure must be properly adjusted before doing this test. Refer to Section 8002 Testing and Adjusting the Loader/Steering Pump differential Pressure.

Pressure Setting Test



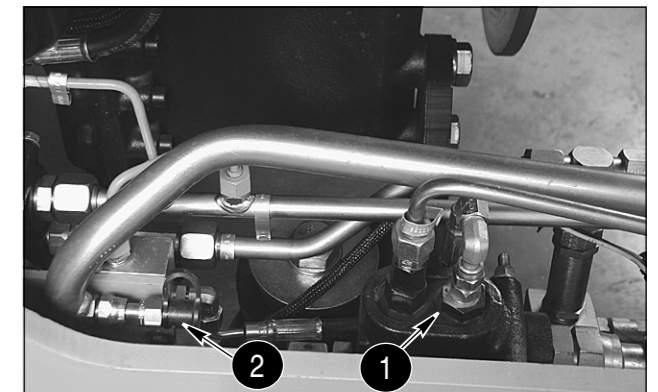
W270-1R006

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BD03A086

1. STEERING PRIORITY VALVE
2. PUMP PRESSURE TEST PORT

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12. Connect a 345 bar (5000 psi) pressure gauge to the test port (2).

NOTE: Make sure when you connect the pressure gauge that you do so in a manner that you can read the pressure gauge while sitting in the operators seat.

Section 5006

CENTER PIVOT

5006

Section 5006

CENTER PIVOT

5006

Section 5007

AUXILIARY STEERING MOTOR AND PUMP

5007

Section 5007

AUXILIARY STEERING MOTOR AND PUMP

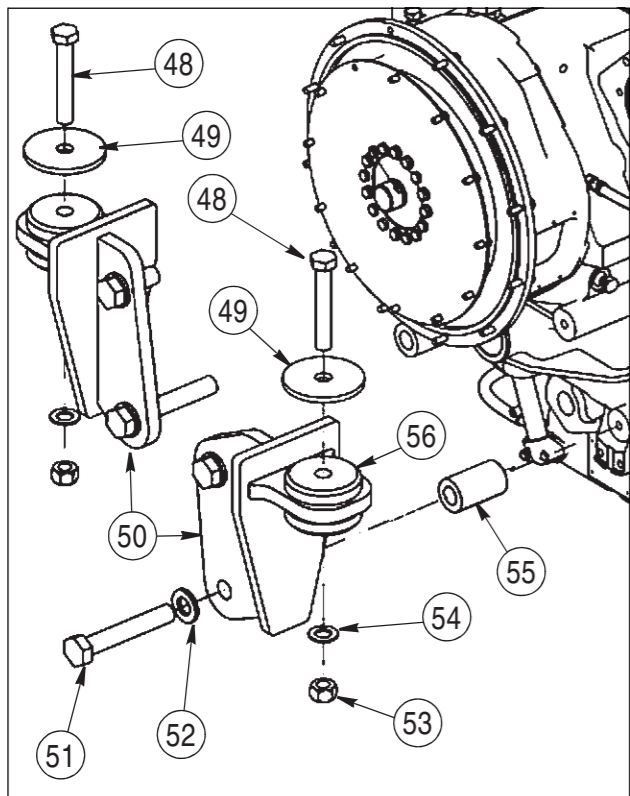
5007

SPECIAL TORQUES

Self-locking nuts for front axle mounting bolts	1877 to 1985 Nm (1380 to 1460 pound-feet)
Drive shaft mounting bolts	.95 to 108 Nm (70 to 80 pound-feet)
Nuts for trunnion mounting bolts	.563 to 590 Nm (415 to 435 pound-feet)
Rear trunnion spacer to axle bolts	.190 to 210 Nm (140 to 155 pound-feet)
Cap screws for cover plate to rear trunnion	.81 to 95 Nm (60 to 70 pound-feet)
Nuts for transmission mounts	.929 to 1044 Nm (685 to 770 pound-feet)
Cap screws for transmission to bracket	.1125 to 1274 Nm (830 to 940 pound-feet)
Nuts for bolt in rear engine mount	.386 to 434 Nm (285 to 320 pound-feet)
Cap screws for hydraulic pump to transmission	.102 to 113 Nm (75 to 83 pound-feet)
Transmission to flywheel housing bolts	.54 to 60 Nm (40 to 44 pound-feet)
Flywheel to flex plate nuts	47 to 53 Nm (420 to 468 pound-inches)
Cab and canopy mounting bolts	.786 to 841 Nm (580 to 620 pound-feet)
Wheel mounting bolts	Preliminary 298 Nm (220 pound feet)
	Final 640 to 720 Nm (475 to 530 pound-feet)

SPECIAL TORQUES

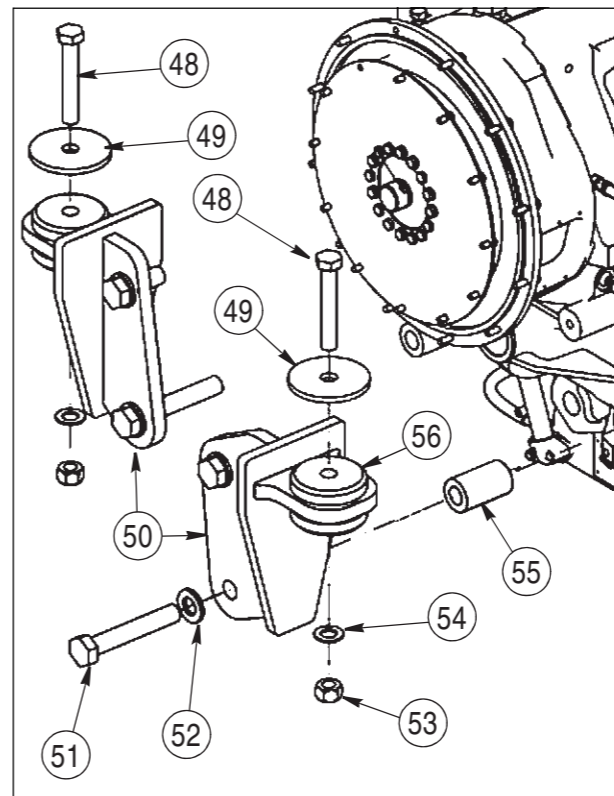
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Wheel mounting bolts	Preliminary 298 Nm (220 pound feet)
	Final 640 to 720 Nm (475 to 530 pound-feet)



- | | |
|-----------------------|---------------------|
| 48. BOLT | 53. NUT |
| 49. WASHER | 54. WASHER |
| 50. MOUNTING BRACKETS | 55. SPACER |
| 51. BOLT | 56. RESILIENT MOUNT |
| 52. WASHER | |

TRANSMISSION MOUNTING BRACKETS

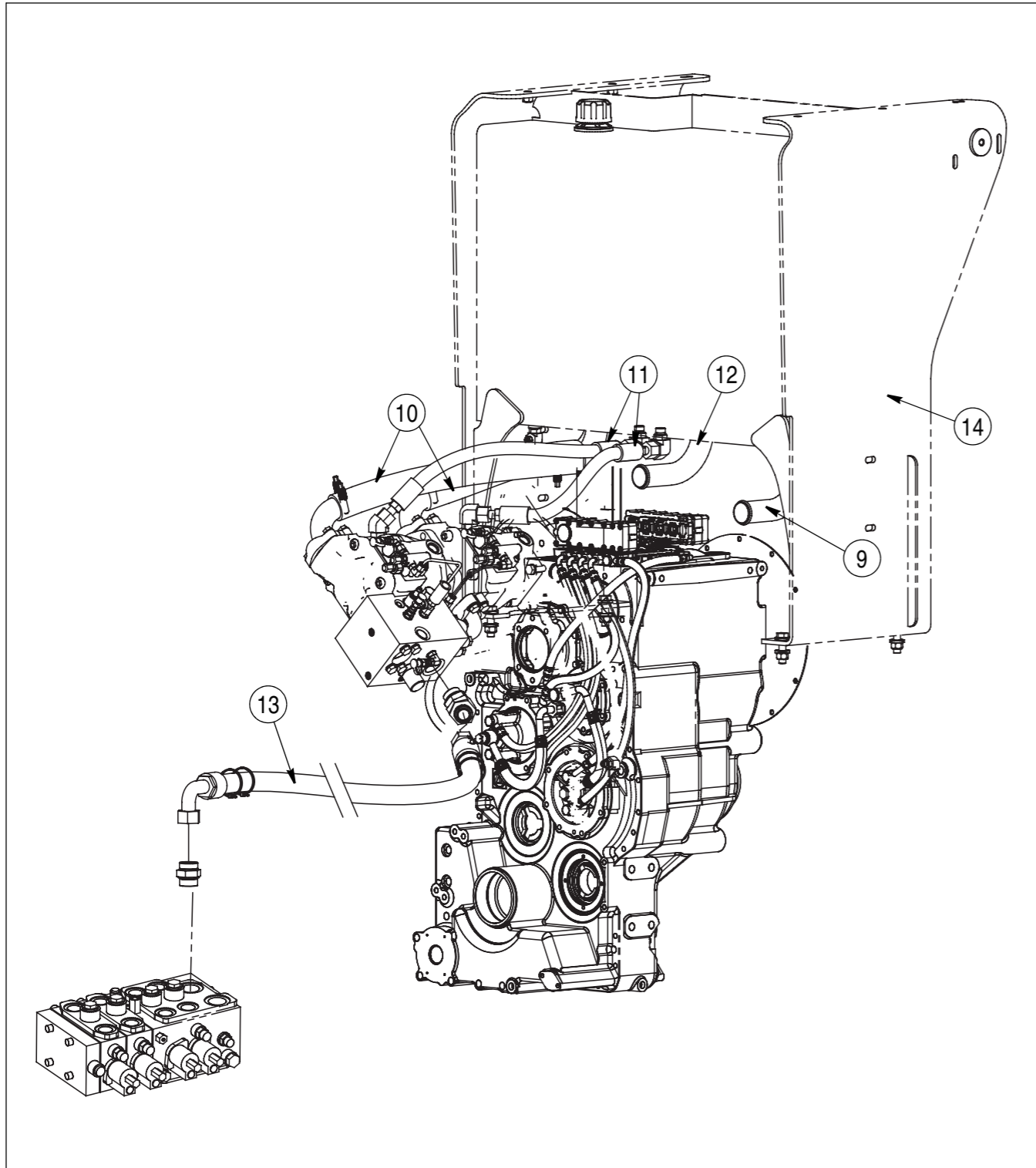
44. Remove the self-locking nuts (53), hardened washers (54), bolts (48), and washers (49).
45. Loosen the nuts on the front ROPS cab or canopy mounting bolts and raise the rear of the ROPS cab or canopy approximately 152 mm (6 inches).
46. Install a block on each side.
47. Raise the engine and transmission, move the engine and transmission to the rear of the machine. Do this as required until the transmission is free of the ROPS cab or canopy.
48. Remove the engine and transmission from the machine. Put the engine and transmission on an acceptable support.
49. Remove the starter from the engine.
50. Fasten acceptable lifting equipment to the transmission.
51. Using the engine turning tool, turn the flywheel for access to the flex plate nuts.
52. Remove the twelve hardened washers and nuts from the flex plate.
53. Remove the cap screws that hold the transmission to the flywheel housing.
54. Remove the transmission.



- | | |
|-----------------------|---------------------|
| 48. BOLT | 53. NUT |
| 49. WASHER | 54. WASHER |
| 50. MOUNTING BRACKETS | 55. SPACER |
| 51. BOLT | 56. RESILIENT MOUNT |
| 52. WASHER | |

TRANSMISSION MOUNTING BRACKETS

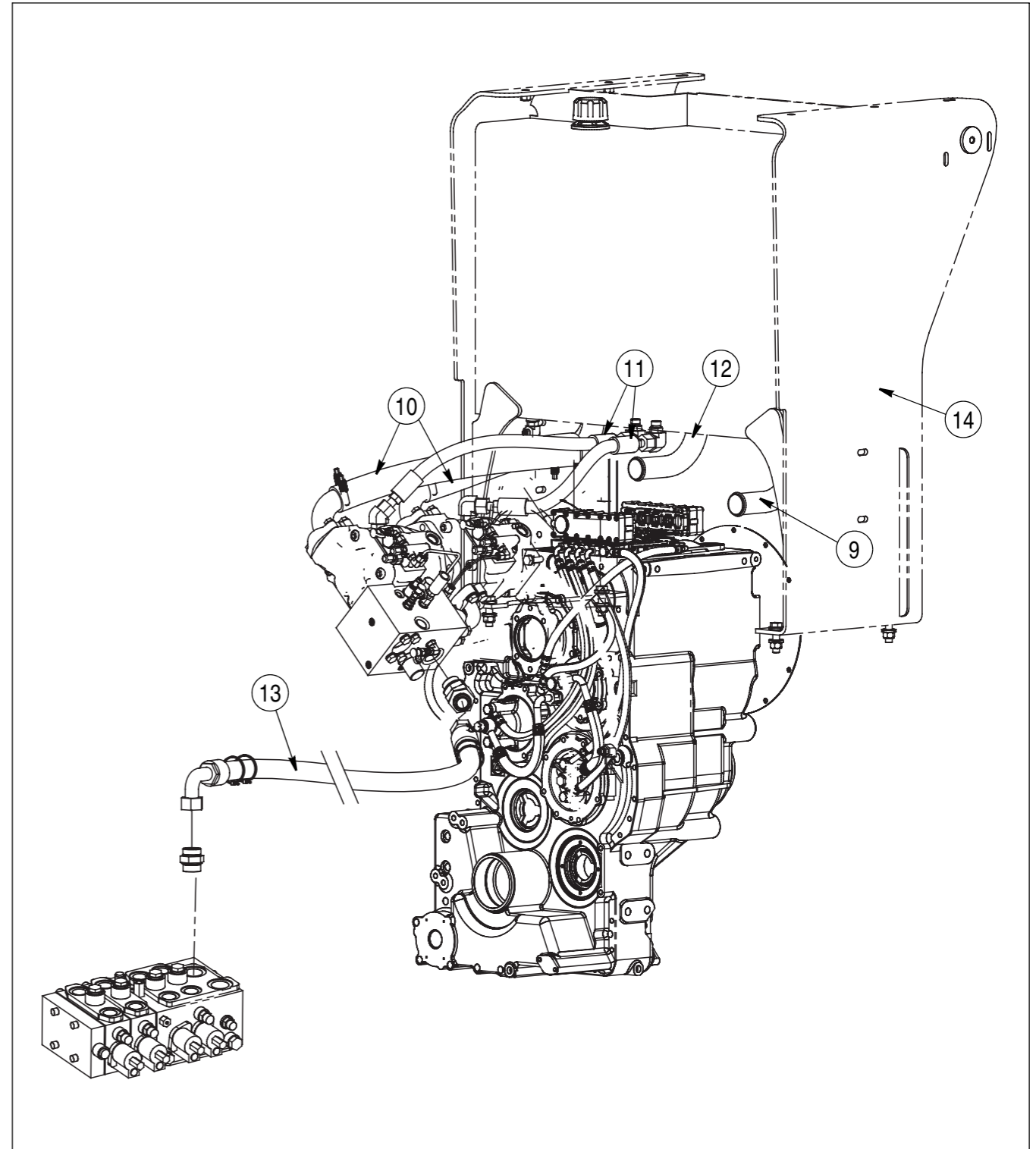
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45. Loosen the nuts on the front ROPS cab or canopy mounting bolts and raise the rear of the ROPS cab or canopy approximately 152 mm (6 inches).
46. Install a block on each side.
47. Raise the engine and transmission, move the engine and transmission to the rear of the machine. Do this as required until the transmission is free of the ROPS cab or canopy.
48. Remove the engine and transmission from the machine. Put the engine and transmission on an acceptable support.
49. Remove the starter from the engine.
50. Fasten acceptable lifting equipment to the transmission.
51. Using the engine turning tool, turn the flywheel for access to the flex plate nuts.
52. Remove the twelve hardened washers and nuts from the flex plate.
53. Remove the cap screws that hold the transmission to the flywheel housing.
54. Remove the transmission.



W270-2R003

- | | |
|--------------------------------------|--------------------------------|
| 9. RETURN FROM HYDRAULIC FILTER | 12. BRAKE PUMP SUCTION HOSE |
| 10. SUCTION HOSES TO HYDRAULIC PUMPS | 13. HOSE LOADER VALVE PRESSURE |
| 11. HYDRAULIC PUMP CASE DRAIN HOSES | 14. HYDRAULIC RESERVOIR |

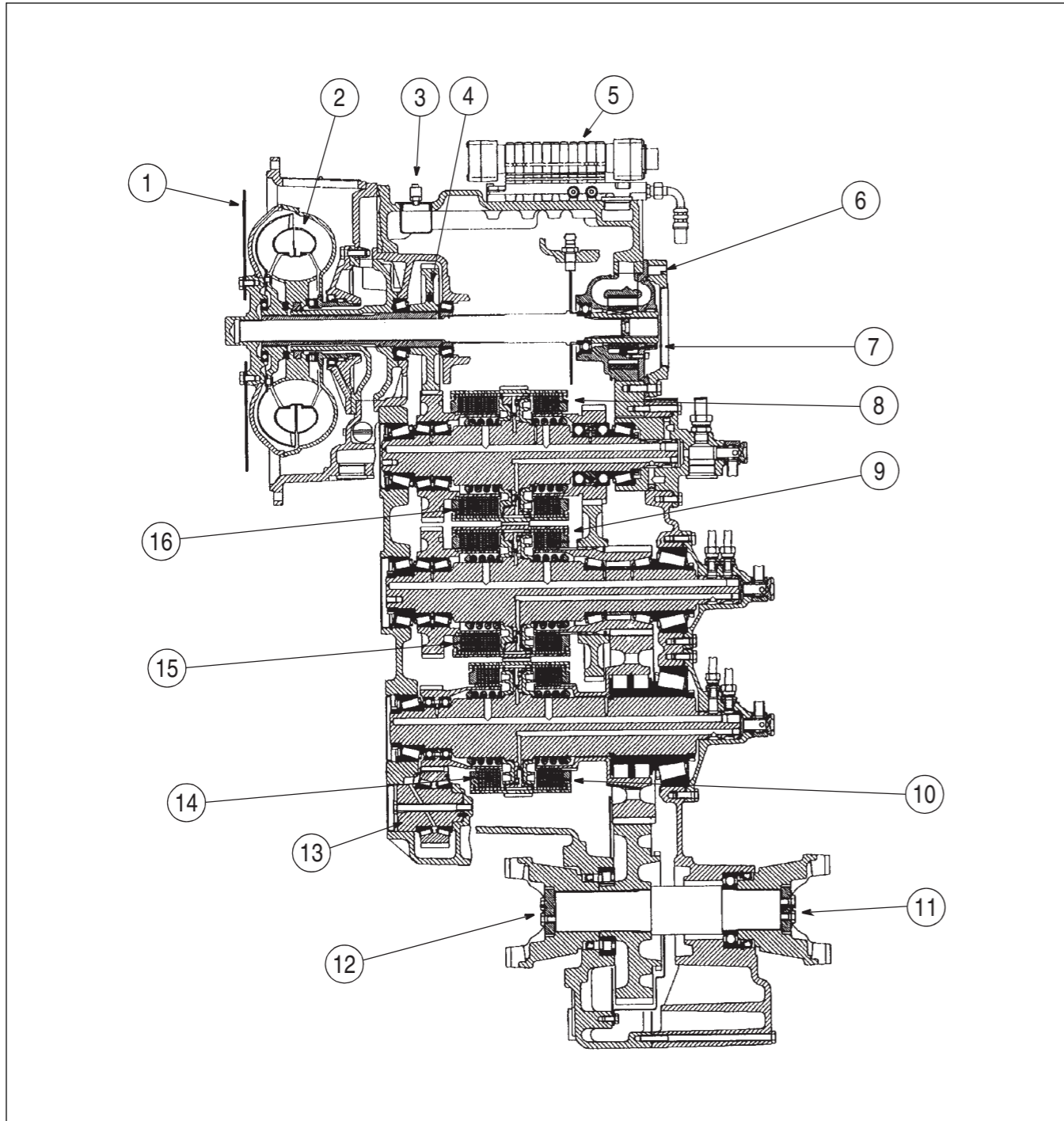
HYDRAULIC RESERVOIR



W270-2R003

- | | |
|--------------------------------------|--------------------------------|
| 9. RETURN FROM HYDRAULIC FILTER | 12. BRAKE PUMP SUCTION HOSE |
| 10. SUCTION HOSES TO HYDRAULIC PUMPS | 13. HOSE LOADER VALVE PRESSURE |
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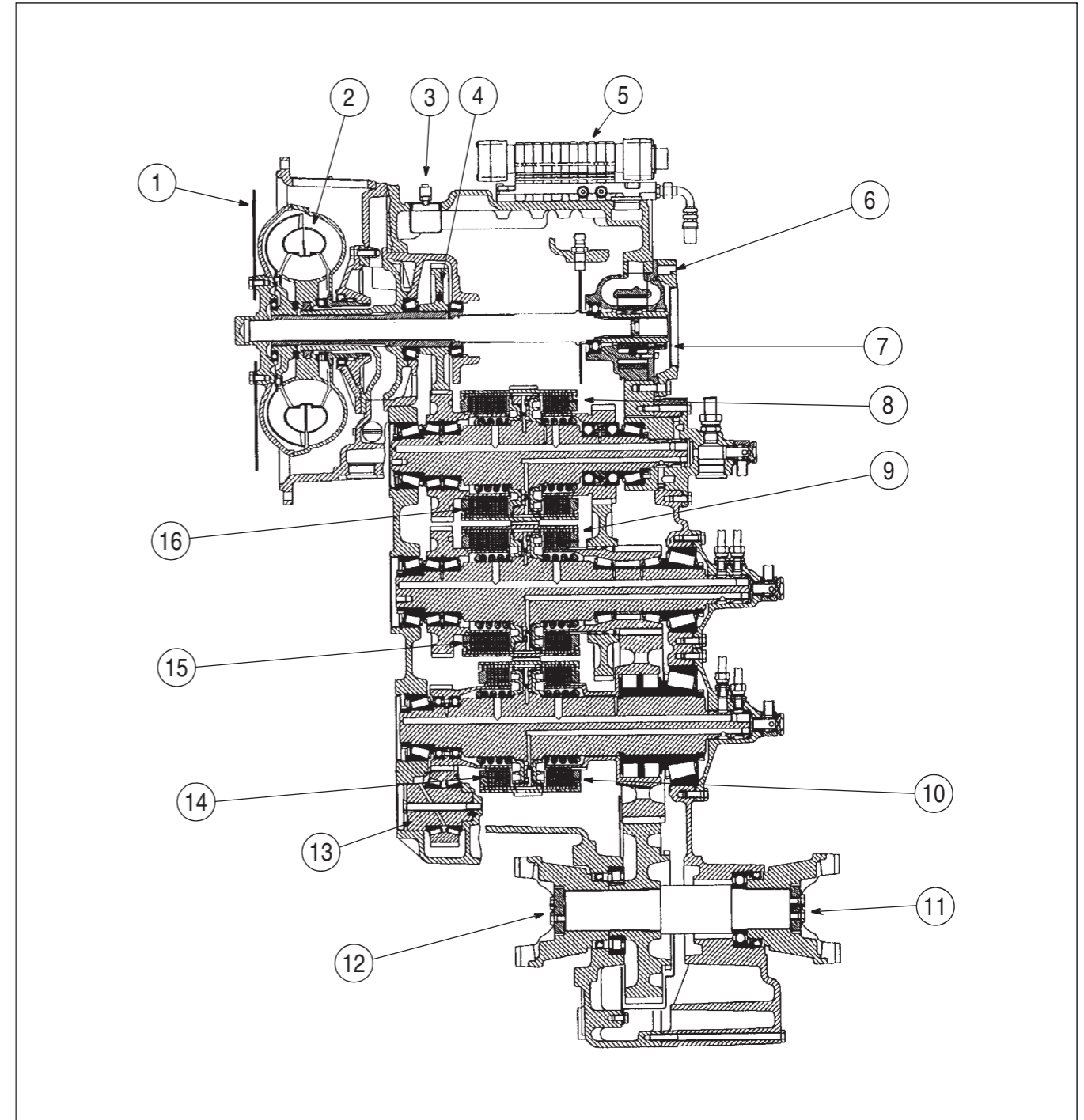
HYDRAULIC RESERVOIR



GS98K624

- | | |
|---|-------------------------------------|
| 1. ENGINE CONNECTION (DIRECT MOUNTING) | 9. CLUTCH K2 (2ND GEAR) |
| 2. CONVERTER | 10. CLUTCH K3 (3RD&4TH GEAR) |
| 3. BREATHER | 11. OUTPUT FRONT AXLE |
| 4. DRIVE | 12. OUTPUT REAR AXLE |
| 5. ELECTRO-HYDRAULIC SHIFT VALVE | 13. LAYSHAFT |
| 6. 1ST POWER TAKE-OFF (PUMP DRIVE) | 14. CLUTCH K4 (FORWARD, HIGH SPEED) |
| 7. CONVERTER CHARGE AND CONTROL PRESSURE PUMP | 15. CLUTCH KR (REVERSE, LOW SPEED) |
| 8. CLUTCH K1 (FIRST GEAR) | 16. CLUTCH KV (FORWARD, LOW SPEED) |

FIGURE 2. COMPONENT LOCATIONS TRANSMISSION LAYOUT



GS98K624

- | | |
|---|-------------------------------------|
| 1. ENGINE CONNECTION (DIRECT MOUNTING) | 9. CLUTCH K2 (2ND GEAR) |
| 2. CONVERTER | 10. CLUTCH K3 (3RD&4TH GEAR) |
| 3. BREATHER | 11. OUTPUT FRONT AXLE |
| 4. DRIVE | 12. OUTPUT REAR AXLE |
| 5. ELECTRO-HYDRAULIC SHIFT VALVE | 13. LAYSHAFT |
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FIGURE 2. COMPONENT LOCATIONS TRANSMISSION LAYOUT

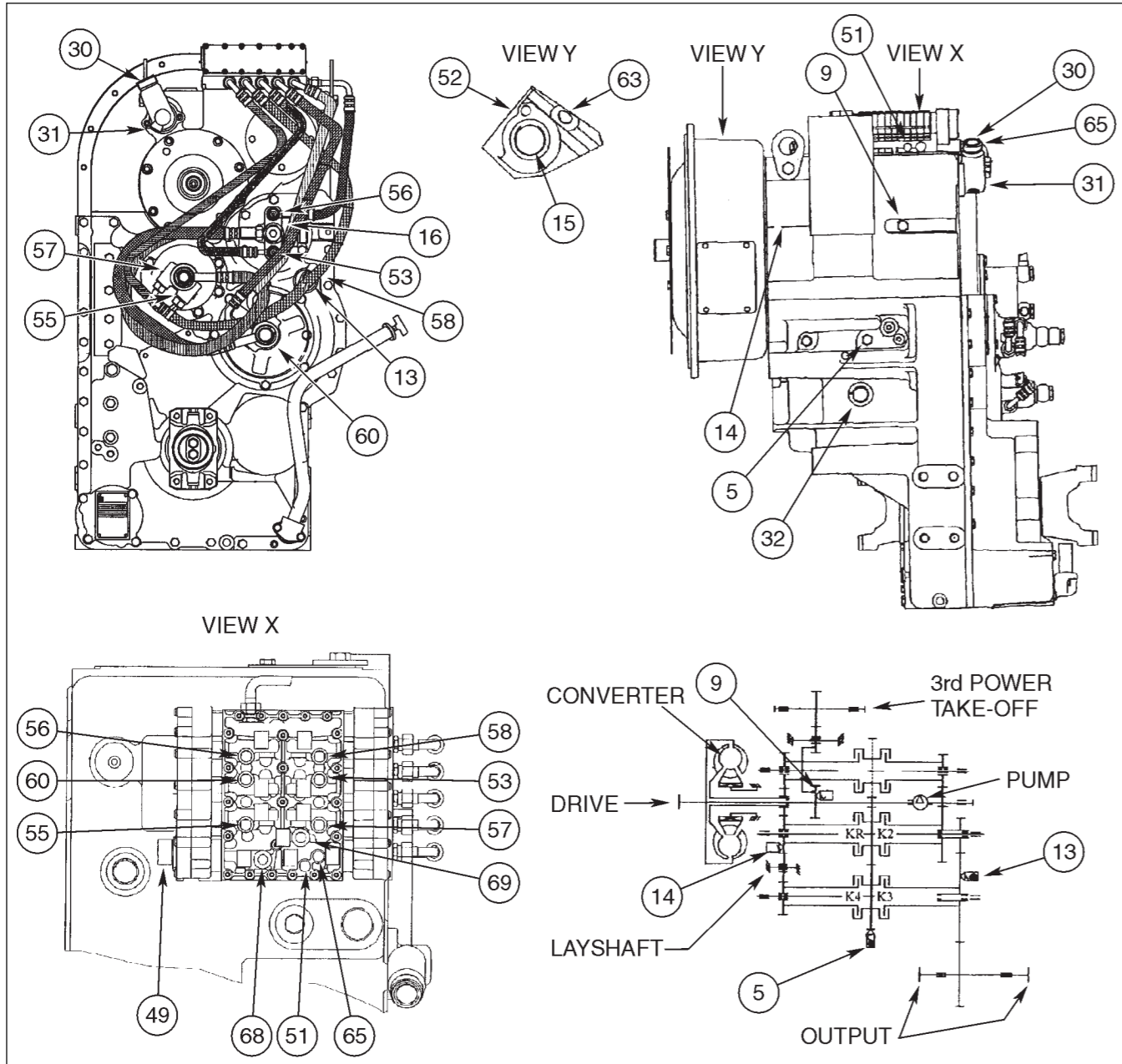


FIGURE 6. MEASURING POINTS AND CONNECTIONS

BC00E065

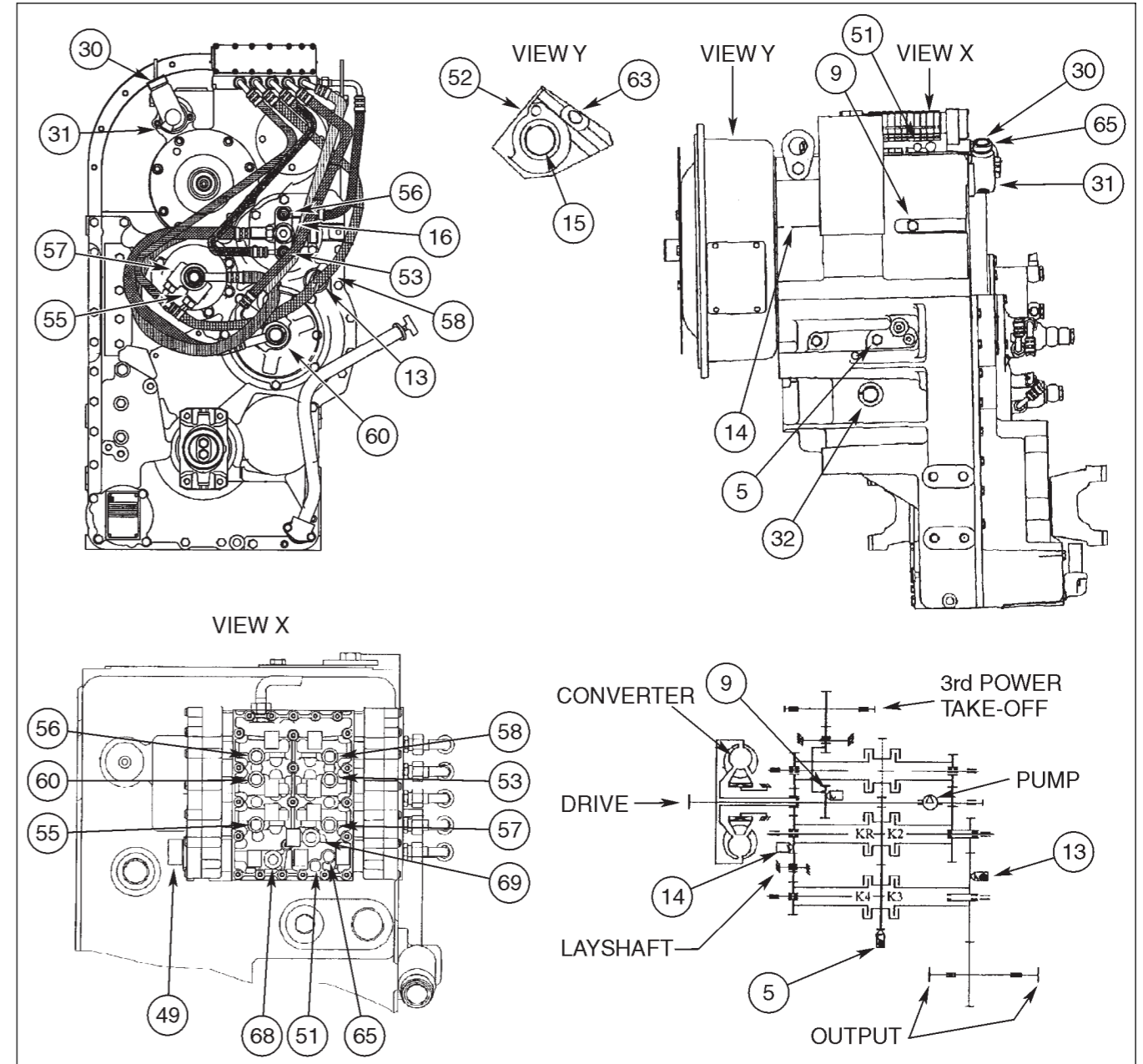


FIGURE 6. MEASURING POINTS AND CONNECTIONS

BC00E065

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SPECIAL TORQUES

Transmission Cover.....	46 Nm
Oil Baffle Plate.....	23 Nm
Brake Rotor.....	46 Nm
Emergency Steering Cover.....	23 Nm
Parking Brake.....	185 Nm
Clutch End Cap (all).....	46 Nm
Reverse Idler (Countershaft).....	46 Nm
Output Drive Flange.....	46 Nm
Filter Cover.....	23 Nm
Oil Pump Supply Flange.....	46 Nm
Converter Housing M12-8.8 Bolts.....	79 Nm
Converter Housing M12-10.9 Bolts.....	117 Nm
Converter Housing M8 Bolts.....	34 Nm
Oil Pump Flange.....	79 Nm
Pump Shaft.....	32 Nm

SPECIFICATIONS

Converter Charge Pump Maximum End Play.....	0.04 mm
All Clutch Packs Disc Clearance.....	2.1 to 2.5 mm
Reverse Spur Gear Bearing End Play.....	0.0 to 0.05 mm
Second Spur Gear Bearing End Play.....	0.05 to 0.15 mm
First Spur Gear Oil Ring and Retaining Ring Thickness (Smaller than Combined Dimension).....	0.0 to 0.05 mm
Reverse Idler (Countershaft Bearing Preload).....	0.0 to 0.10 mm
Final Drive Bearing End Play.....	0.3 to 0.5 mm
Third/Fourth Clutch Bearing Preload.....	0.15 to 0.20 mm
Reverse/Second Clutch Bearing Preload.....	0.2 to 0.25 mm
Forward/First Clutch Bearing Preload.....	0.15 to 0.20 mm

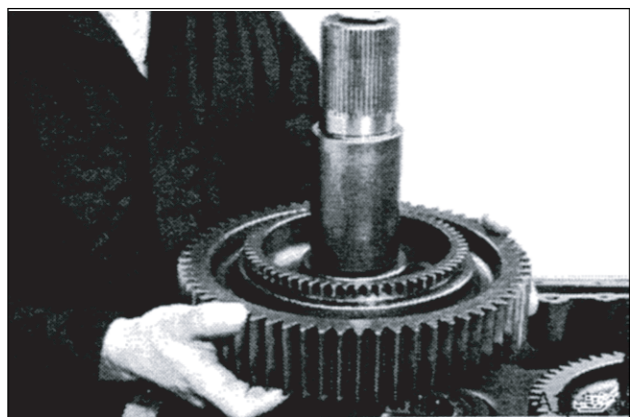
SPECIAL TORQUES

Transmission Cover.....	46 Nm
Oil Baffle Plate.....	23 Nm
Brake Rotor.....	46 Nm
Emergency Steering Cover.....	23 Nm
Parking Brake.....	185 Nm
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Converter Housing M12-8.8 Bolts.....	79 Nm
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SPECIFICATIONS

Converter Charge Pump Maximum End Play.....	0.04 mm
All Clutch Packs Disc Clearance.....	2.1 to 2.5 mm
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Second Spur Gear Bearing End Play.....	0.05 to 0.15 mm
First Spur Gear Oil Ring and Retaining Ring Thickness (Smaller than Combined Dimension).....	0.0 to 0.05 mm
Reverse Idler (Countershaft Bearing Preload).....	0.0 to 0.10 mm
Final Drive Bearing End Play.....	0.3 to 0.5 mm
Third/Fourth Clutch Bearing Preload.....	0.15 to 0.20 mm
Reverse/Second Clutch Bearing Preload.....	0.2 to 0.25 mm
Forward/First Clutch Bearing Preload.....	0.15 to 0.20 mm

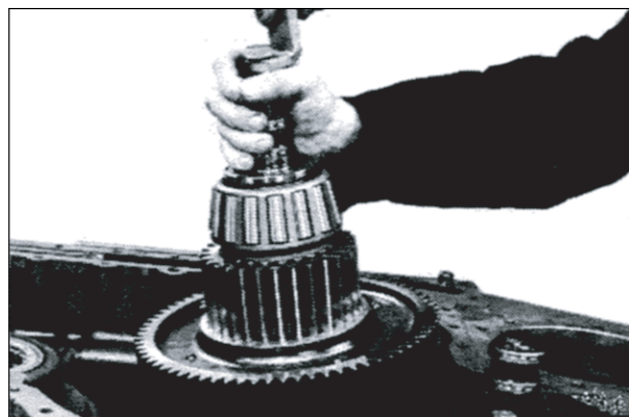
STEP 55



A15111

Remove the output shaft and gear.

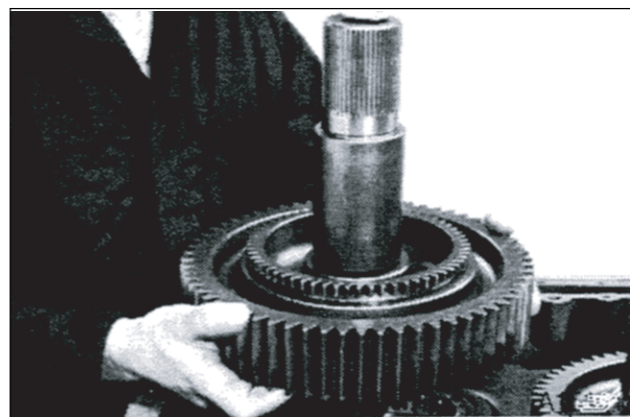
STEP 58



A15114

Remove reverse/second clutch pack.

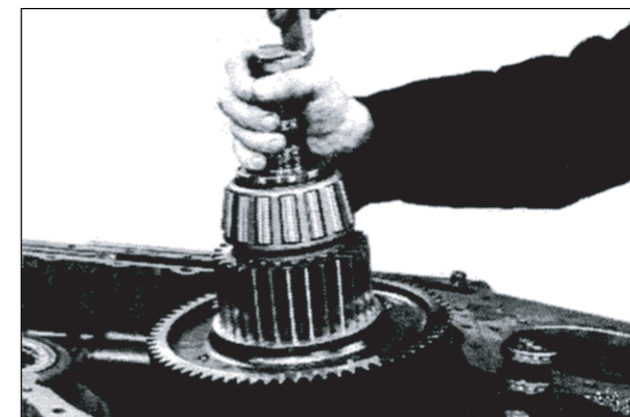
STEP 55



A15111

Remove the output shaft and gear.

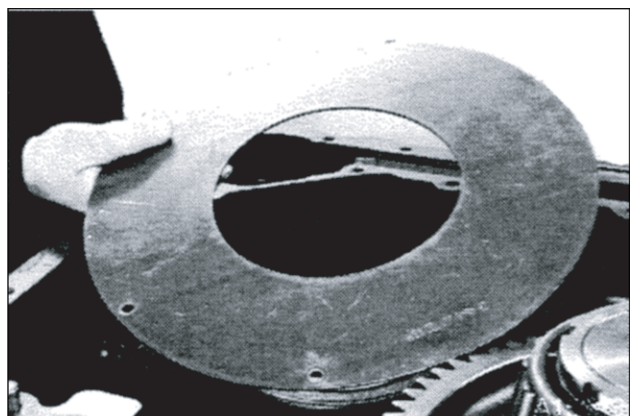
STEP 58



A15114

Remove reverse/second clutch pack.

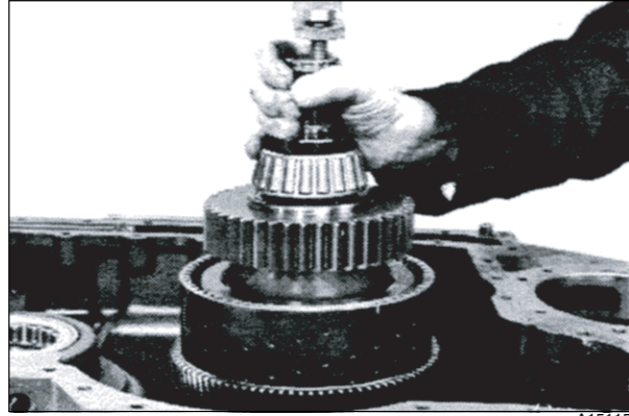
STEP 56



A15112

Remove the lower oil baffle.

STEP 59



A15115

Remove forward/first clutch pack.

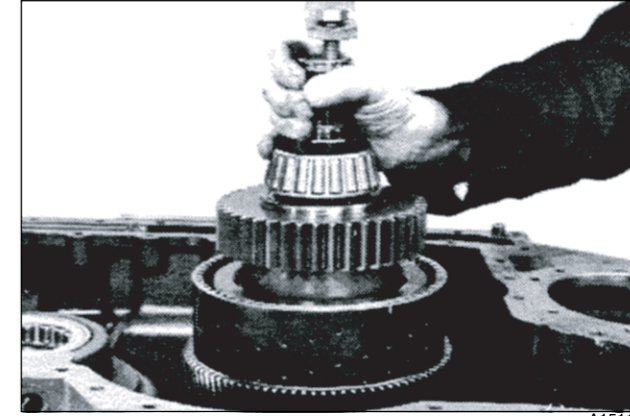
STEP 56



A15112

Remove the lower oil baffle.

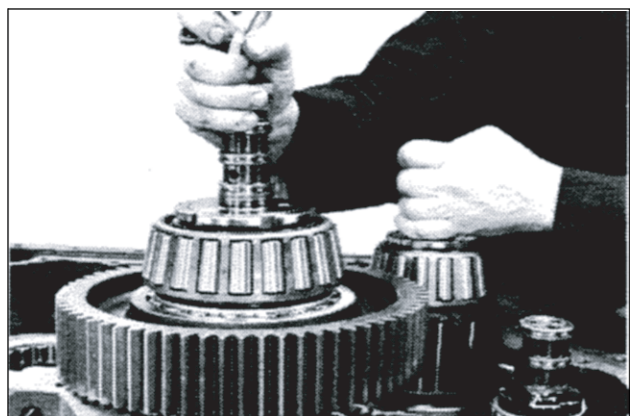
STEP 59



A15115

Remove forward/first clutch pack.

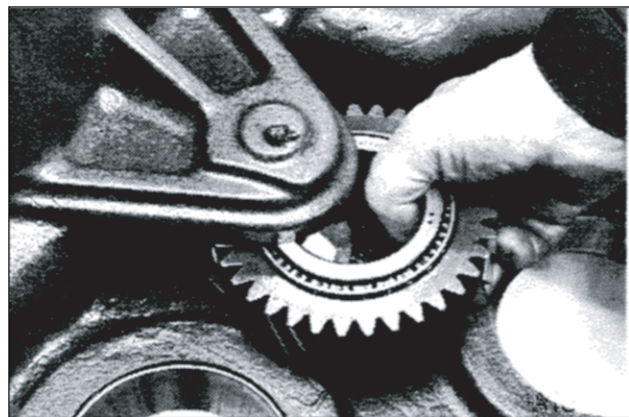
STEP 57



A15113

Remove third/fourth speed clutch pack. Pull the other clutch packs away to get clearance.

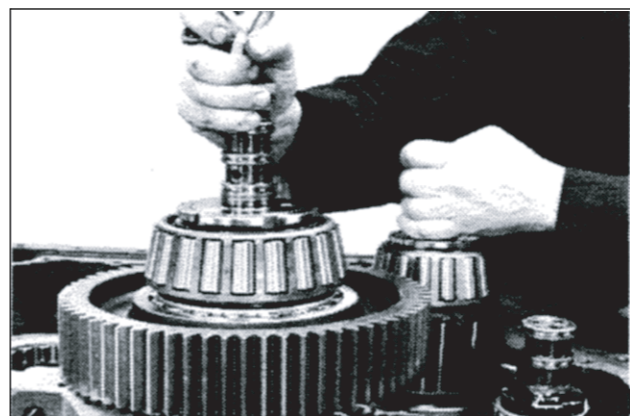
STEP 60



A15116

Remove reverse idler (countershaft) gear and bearing.

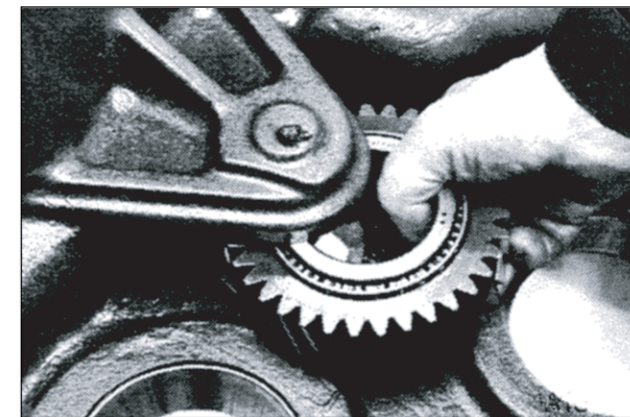
STEP 57



A15113

Remove third/fourth speed clutch pack. Pull the other clutch packs away to get clearance.

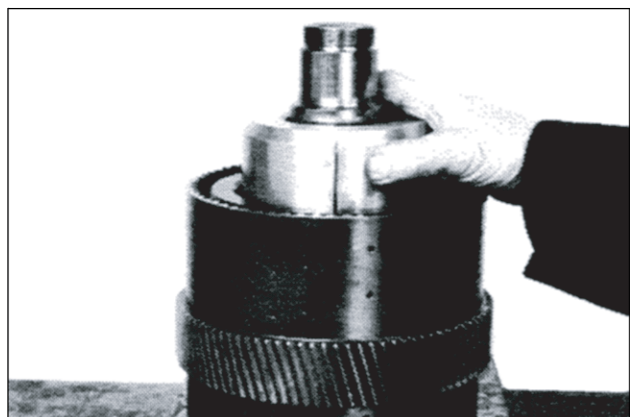
STEP 60



A15116

Remove reverse idler (countershaft) gear and bearing.

STEP 92



A15162

Align the clutch discs using alignment tool CAS-2265-1 and spacer CAS-2265-3.

STEP 93



A15163

Install the spur gear until engaged with all clutch discs. Apply compressed air to the inlet port on the shaft and observe the spur gear. If the ear goes up and down, all clutch discs are not engaged. The gear must not move when air is applied.

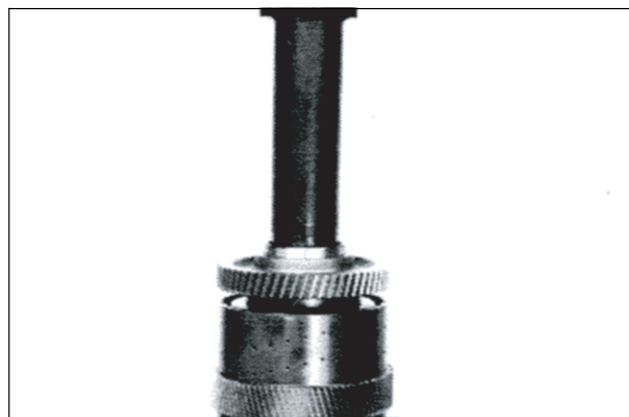
STEP 94



A15164

Install the spacer ring.

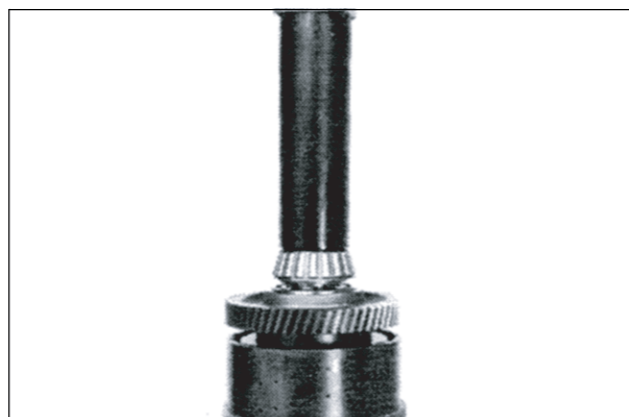
STEP 95



A15165

Using press tube CAS-2266-1 and adapter ring CAS-2263-3, press bearing on until tight against spacer.

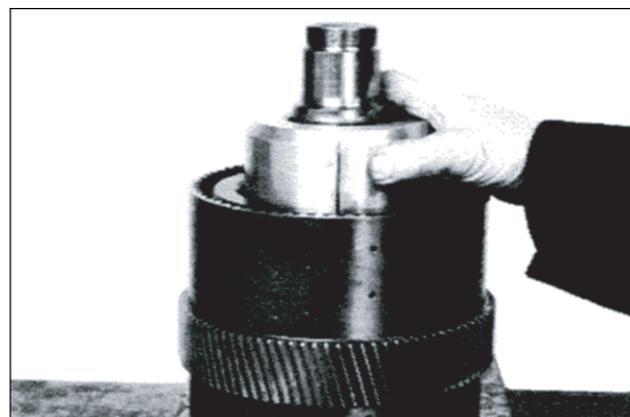
STEP 96



A15166

Install tapered bearing using tube CAS-2266-1 and adapter ring CAS-2266-3. Install slotted nut on shaft.

STEP 92



A15162

Align the clutch discs using alignment tool CAS-2265-1 and spacer CAS-2265-3.

STEP 93



A15163

Install the spur gear until engaged with all clutch discs. Apply compressed air to the inlet port on the shaft and observe the spur gear. If the ear goes up and down, all clutch discs are not engaged. The gear must not move when air is applied.

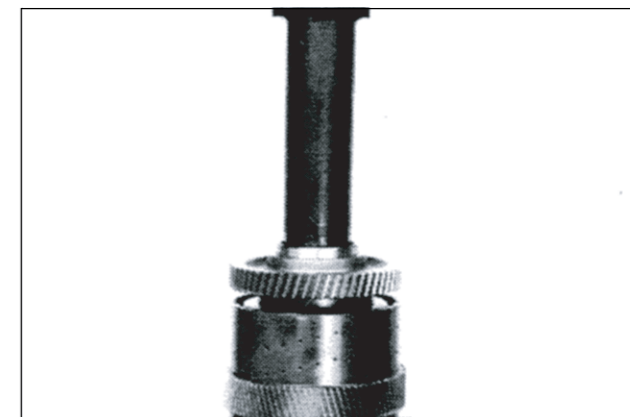
STEP 94



A15164

Install the spacer ring.

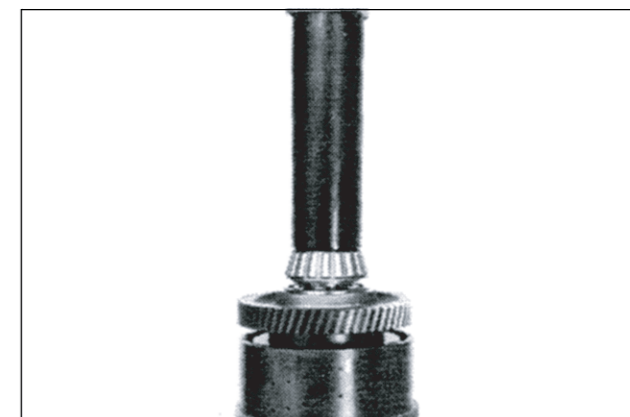
STEP 95



A15165

Using press tube CAS-2266-1 and adapter ring CAS-2263-3, press bearing on until tight against spacer.

STEP 96

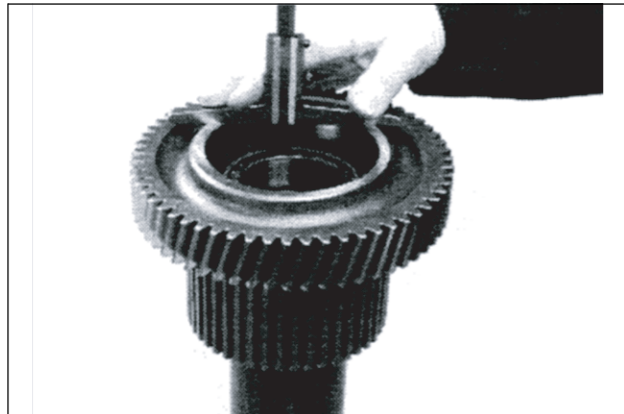


A15166

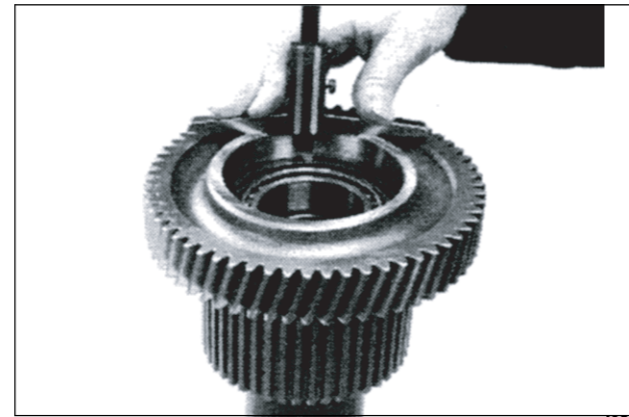
Install tapered bearing using tube CAS-2266-1 and adapter ring CAS-2266-3. Install slotted nut on shaft.

SPUR GEAR BEARING END PLAY PROCEDURE

STEP 124



A15252



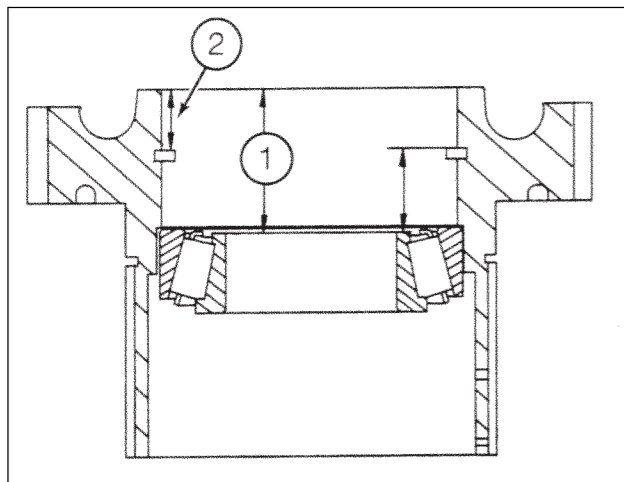
A15253

Install a bearing cup tight against the gear bore shoulder.

Take the difference between the two dimensions. This is the reference dimension.

EXAMPLE:

Dimension 1	25.95	mm
Dimension 2	20.85	mm
Reference #	<u>4.10</u>	mm

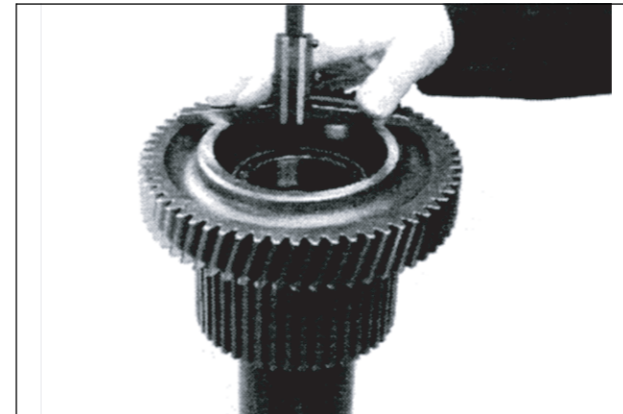


740L92

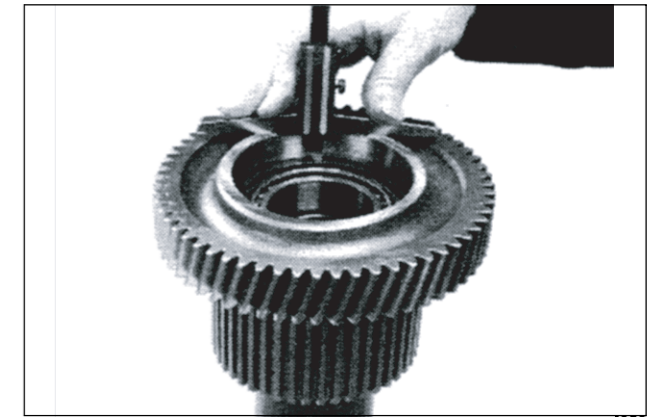
Install the lower bearing cone. Support the bearing on the inner race. Measure from the spur gear to the bearing inner race, Dimension 1.

SPUR GEAR BEARING END PLAY PROCEDURE

STEP 124



A15252



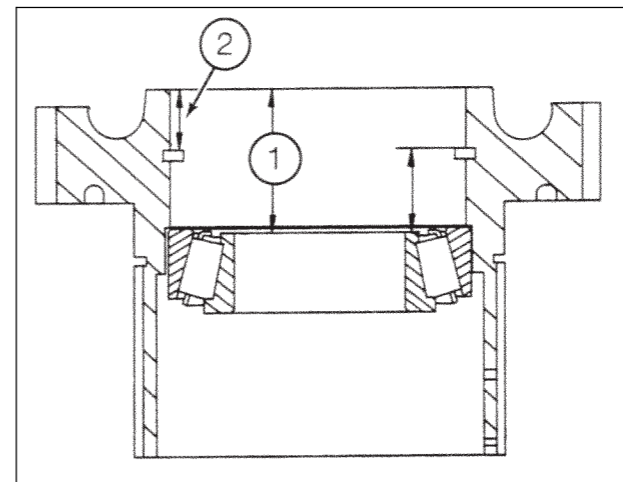
A15253

Install a bearing cup tight against the gear bore shoulder.

Take the difference between the two dimensions. This is the reference dimension.

EXAMPLE:

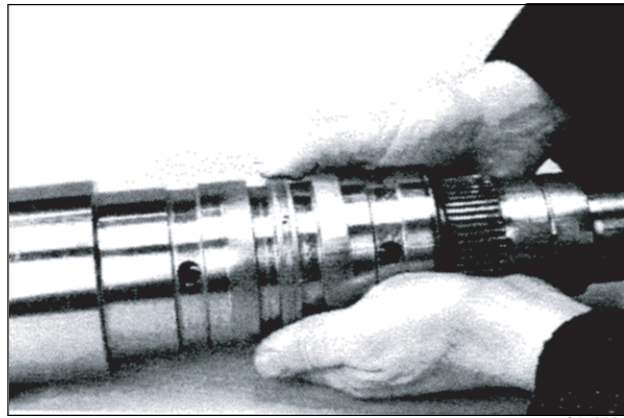
Dimension 1	25.95	mm
Dimension 2	20.85	mm
Reference #	<u>4.10</u>	mm



740L92

Install the lower bearing cone. Support the bearing on the inner race. Measure from the spur gear to the bearing inner race, Dimension 1.

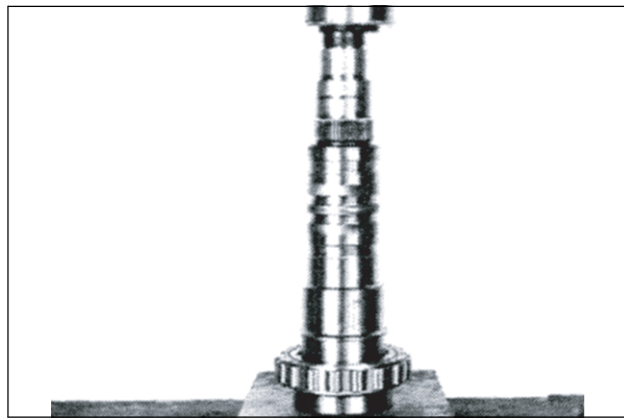
STEP 156



A15220A

Install the oil control ring on clutch shaft. Lock the ring ends together.

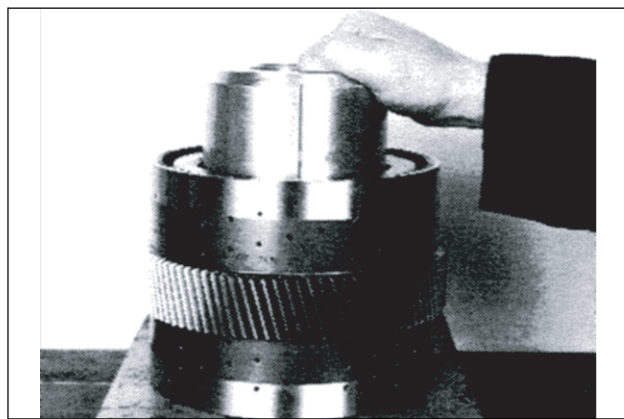
STEP 157



A15222

Press the sleeve and lower bearing onto the clutch shaft so the bearing is against the shaft ridge.

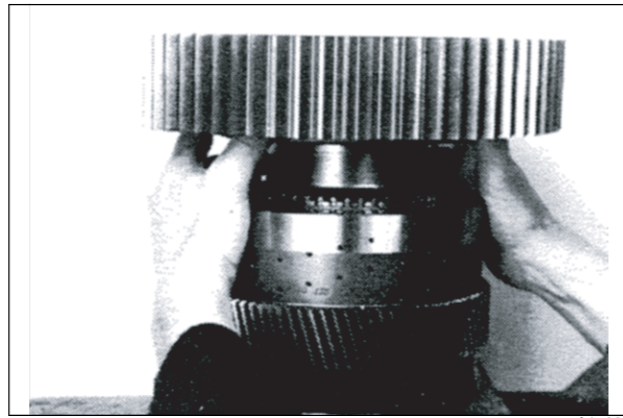
STEP 158



A15223

Align all clutch discs on the third clutch (long side of carrier) using aligning tool CAS-2265-1.

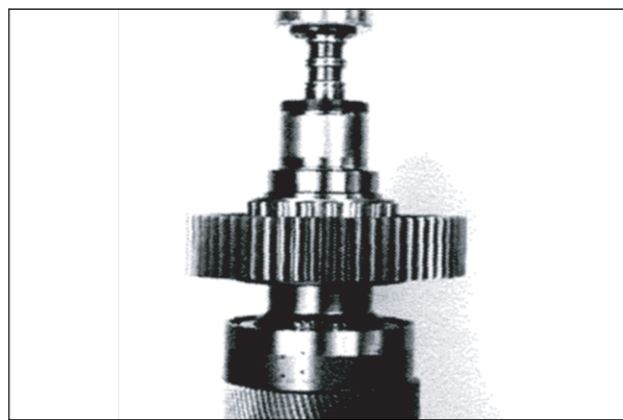
STEP 159



A15224

Install the spur gear on the third side of the clutch pack (long side of carrier) until all clutch discs are fully engaged. Apply compressed air to the inlet port on the shaft and observe the spur gear. If the gear goes up and down, all the clutch discs are not engaged. The gear must not move when air is applied.

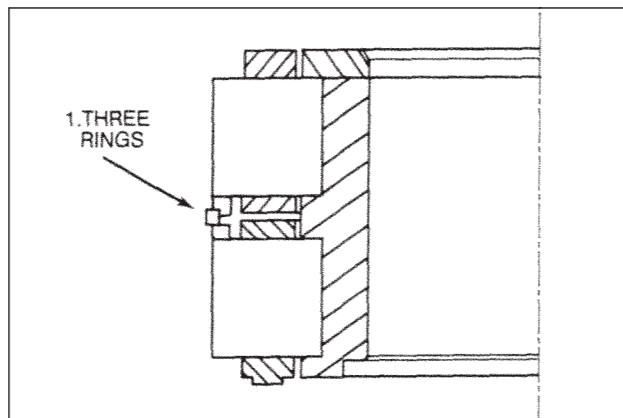
STEP 160



A15225

Install the shaft into the clutch pack assembly.

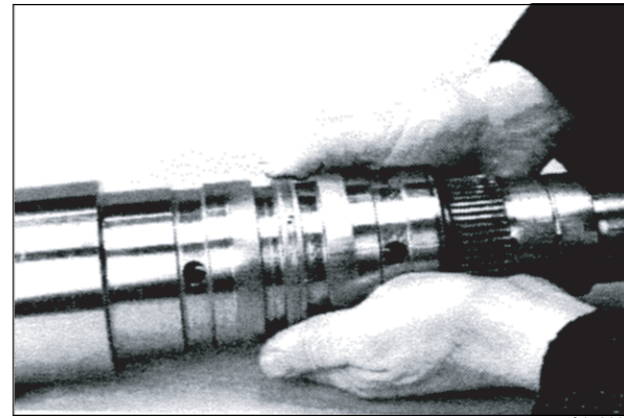
STEP 161



733L92

Install three (3) rings as shown in illustration.

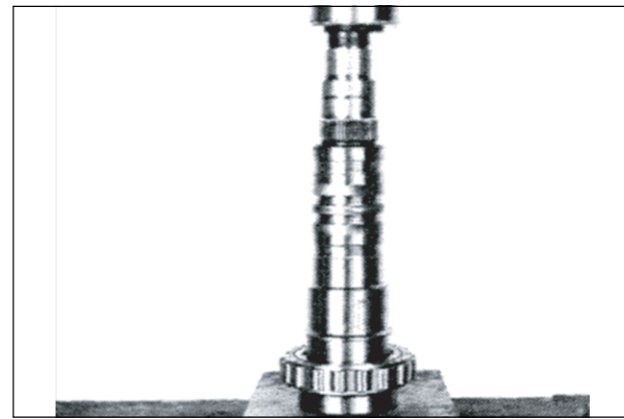
STEP 156



A15220A

Install the oil control ring on clutch shaft. Lock the ring ends together.

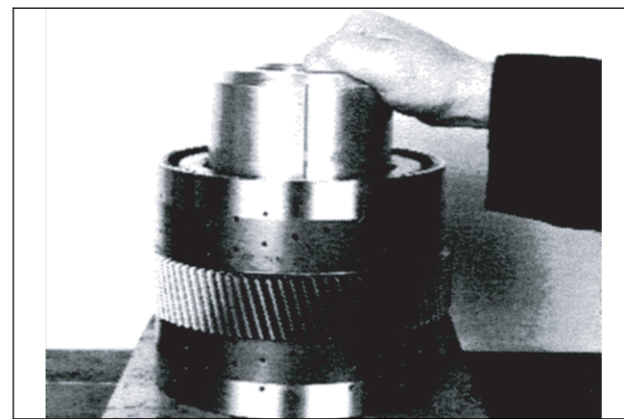
STEP 157



A15222

Press the sleeve and lower bearing onto the clutch shaft so the bearing is against the shaft ridge.

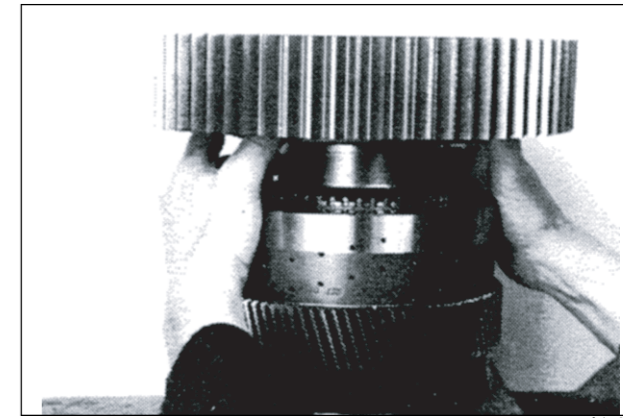
STEP 158



A15223

Align all clutch discs on the third clutch (long side of carrier) using aligning tool CAS-2265-1.

STEP 159



A15224

Install the spur gear on the third side of the clutch pack (long side of carrier) until all clutch discs are fully engaged. Apply compressed air to the inlet port on the shaft and observe the spur gear. If the gear goes up and down, all the clutch discs are not engaged. The gear must not move when air is applied.

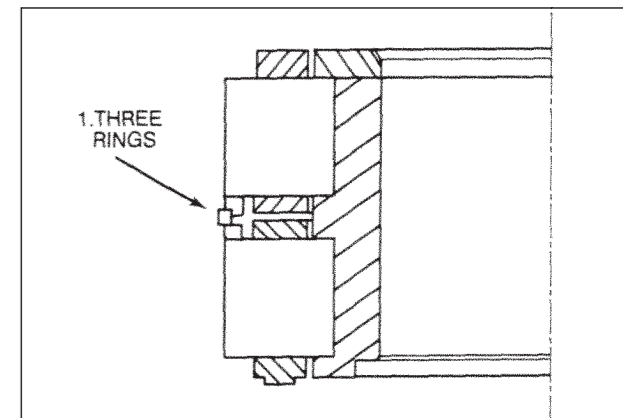
STEP 160



A15225

Install the shaft into the clutch pack assembly.

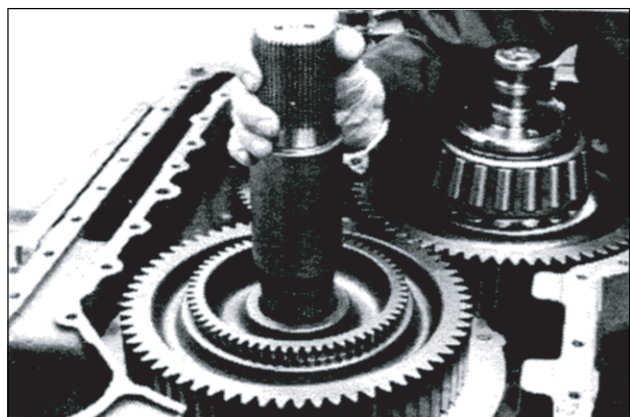
STEP 161



733L92

Install three (3) rings as shown in illustration.

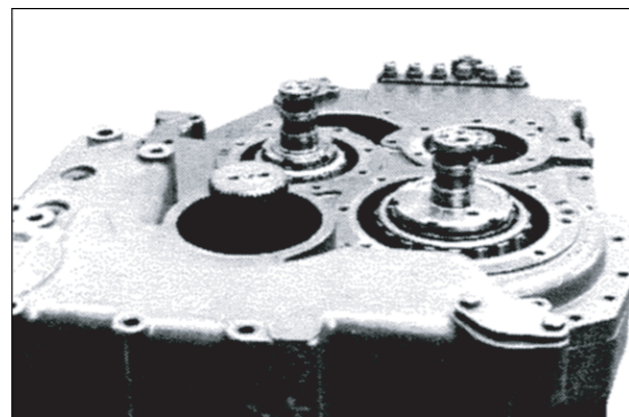
STEP 192



A15295

Install the output shaft. The longer splined end goes into the gear.

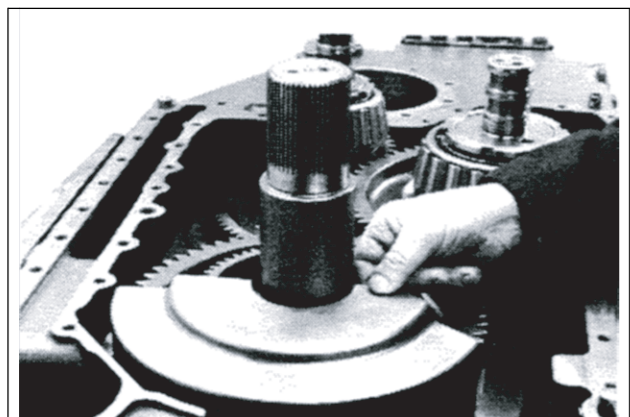
STEP 194



A15297

Install the cover without bearing cups. Tighten the bolts to a torque of 46 Nm.

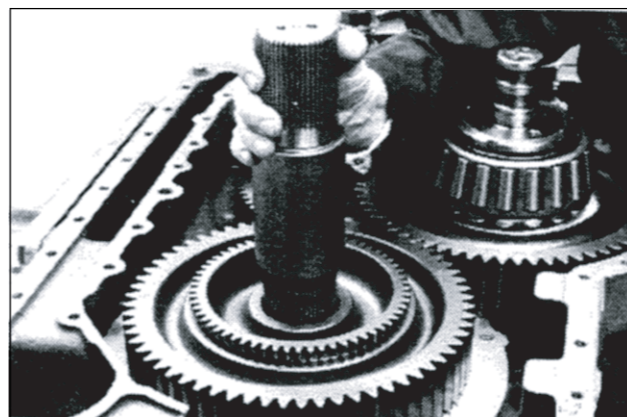
STEP 193



A15296

Install the upper oil baffle. Tighten the bolts to a torque of 23 Nm.

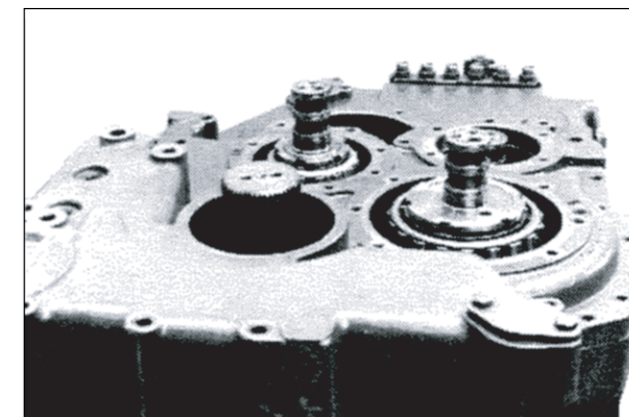
STEP 192



A15295

Install the output shaft. The longer splined end goes into the gear.

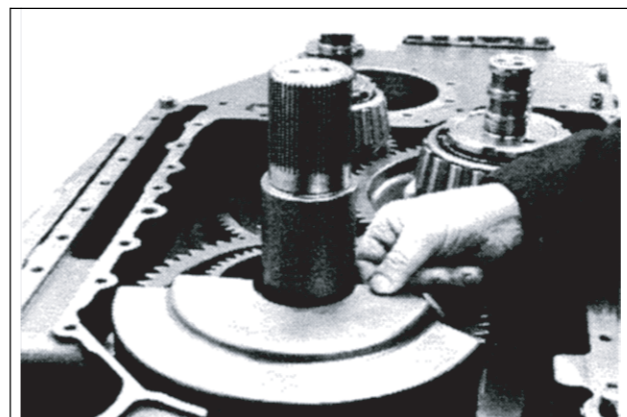
STEP 194



A15297

Install the cover without bearing cups. Tighten the bolts to a torque of 46 Nm.

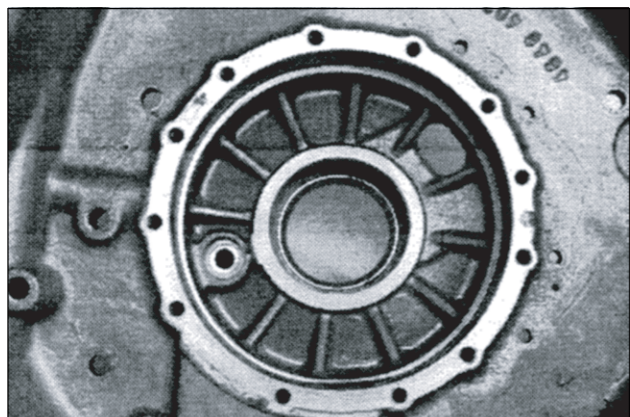
STEP 193



A15296

Install the upper oil baffle. Tighten the bolts to a torque of 23 Nm.

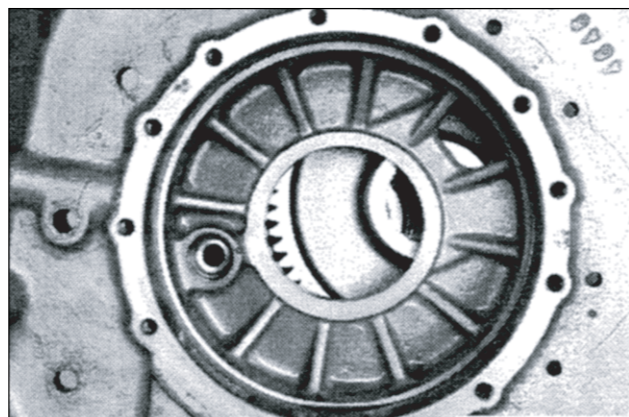
STEP 231



STEP 199

Install the bearing cup into the converter housing.

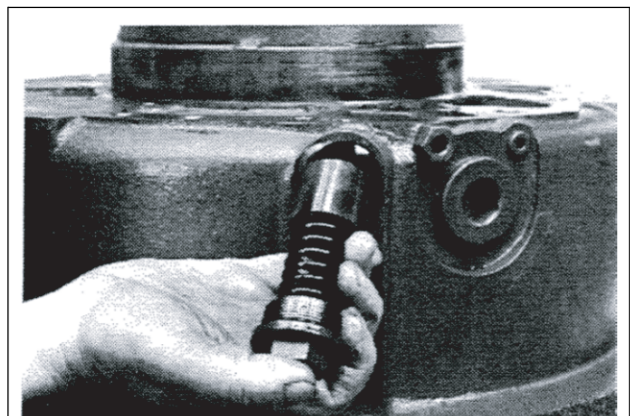
STEP 234



A15330

Install the spur gear into the housing.

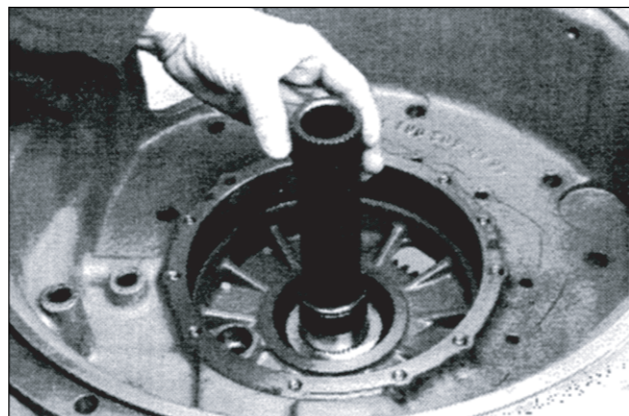
STEP 232



A15073

Install the converter control valve.

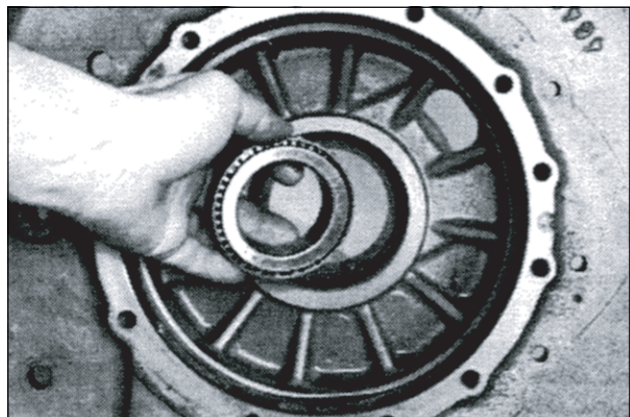
STEP 235



A15331

Install the drive shaft.

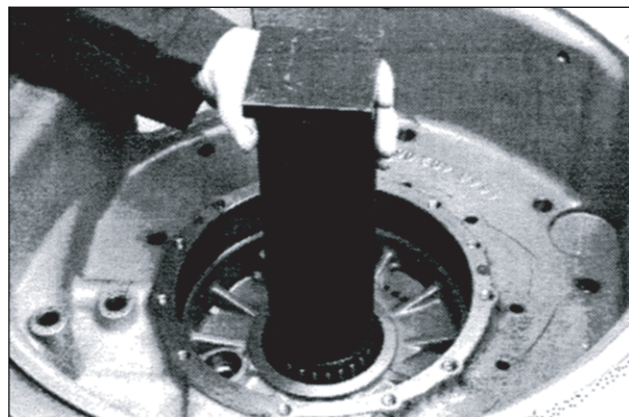
STEP 233



A15329

Install the bearing cone into the cup.

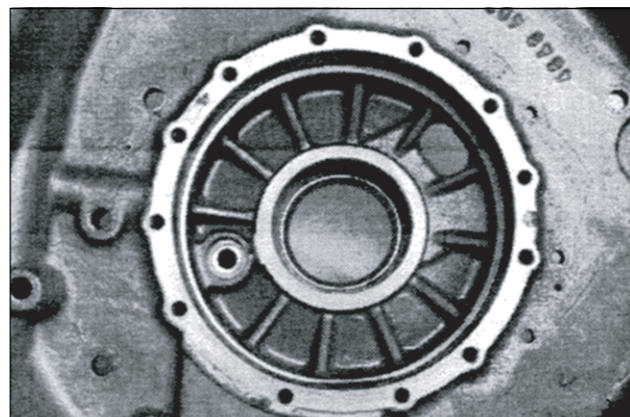
STEP 236



A15332

Install the bearing cone using tube CAS-2266-1 and step plate CAS-2266-4.

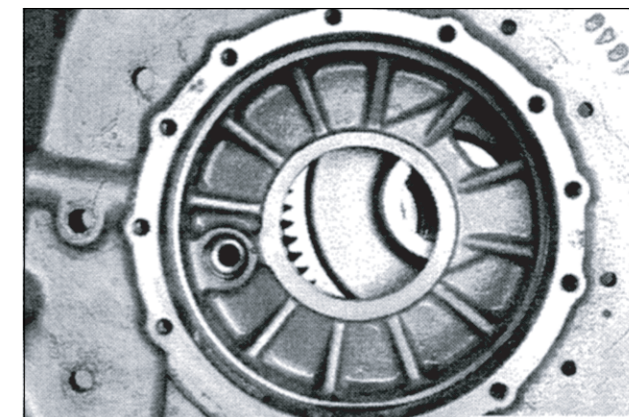
STEP 231



STEP 199

Install the bearing cup into the converter housing.

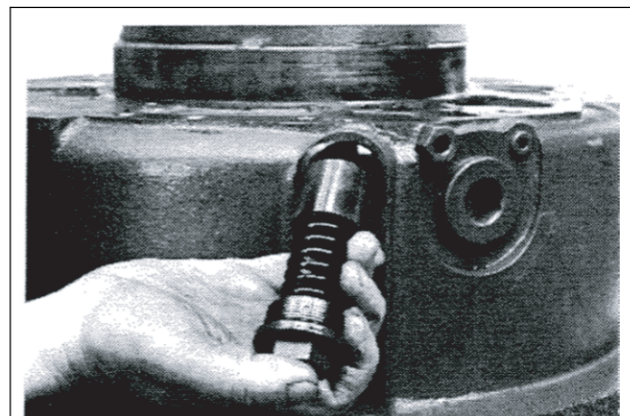
STEP 234



A15330

Install the spur gear into the housing.

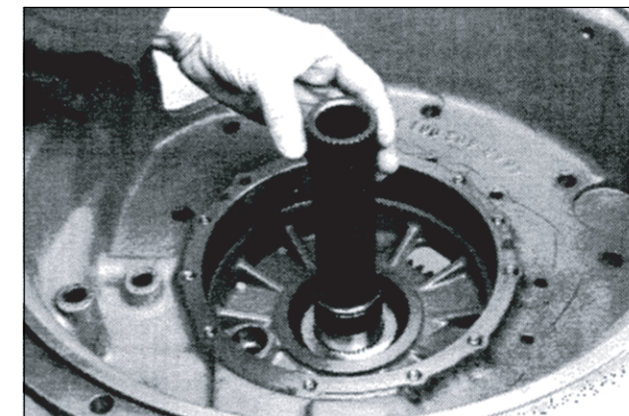
STEP 232



A15073

Install the converter control valve.

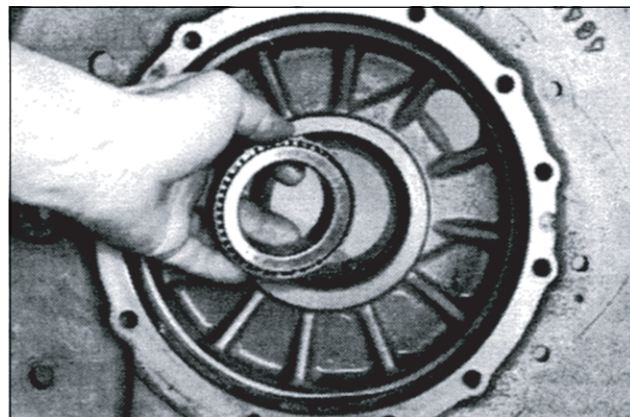
STEP 235



A15331

Install the drive shaft.

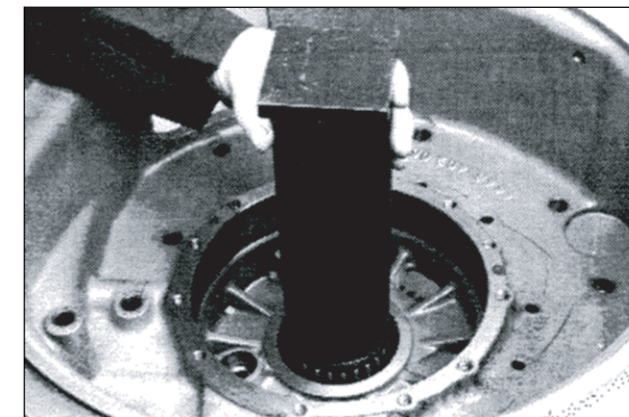
STEP 233



A15329

Install the bearing cone into the cup.

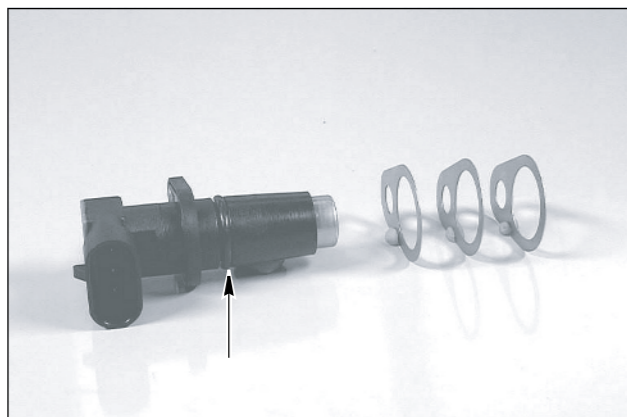
STEP 236



A15332

Install the bearing cone using tube CAS-2266-1 and step plate CAS-2266-4.

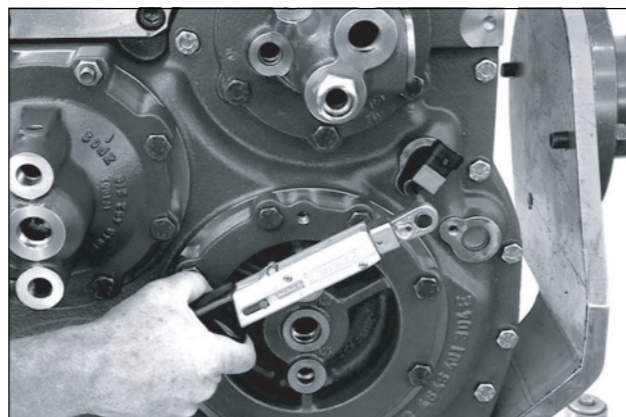
STEP 269



BD07B057

Install required shims, lubricate O-ring with Molydisulfide grease.

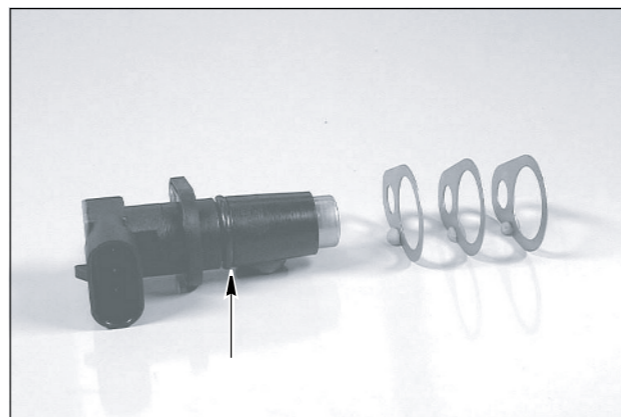
STEP 270



BD07B058

Install and torque the mounting screw to 23 Nm (17 pound feet).

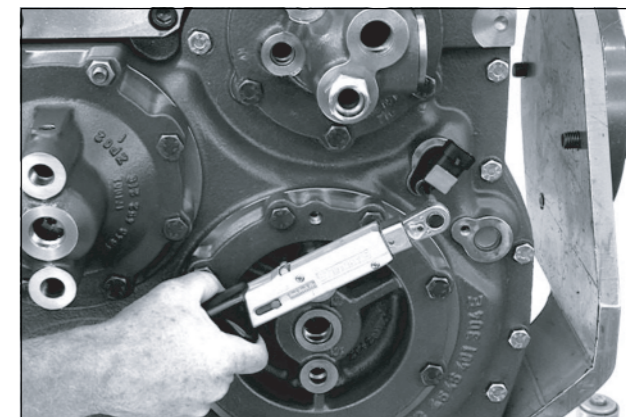
STEP 269



BD07B057

Install required shims, lubricate O-ring with Molydisulfide grease.

STEP 270



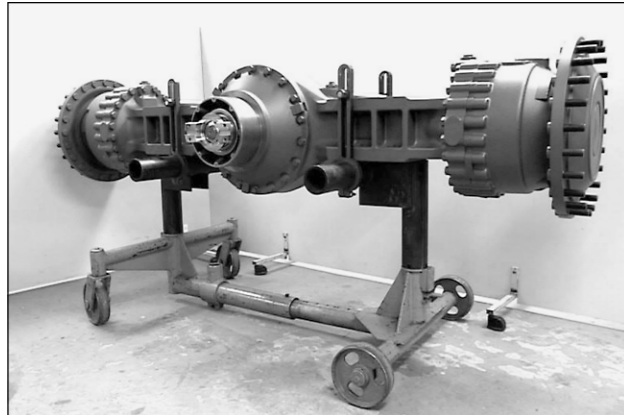
BD07B058

Install and torque the mounting screw to 23 Nm (17 pound feet).

WHEEL END AND BRAKES

Disassembly

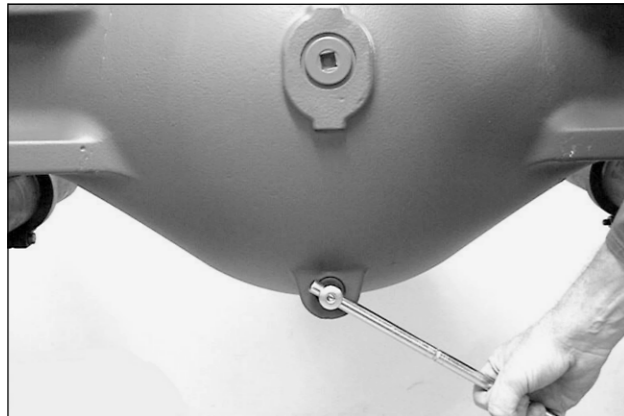
STEP 1



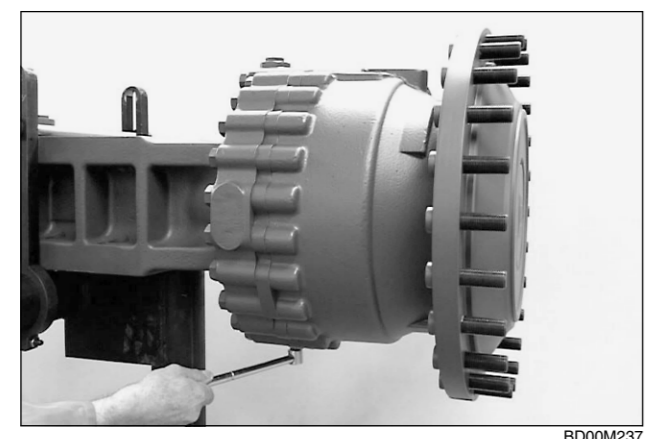
BD00M235

Fasten the axle on a stand.

STEP 2



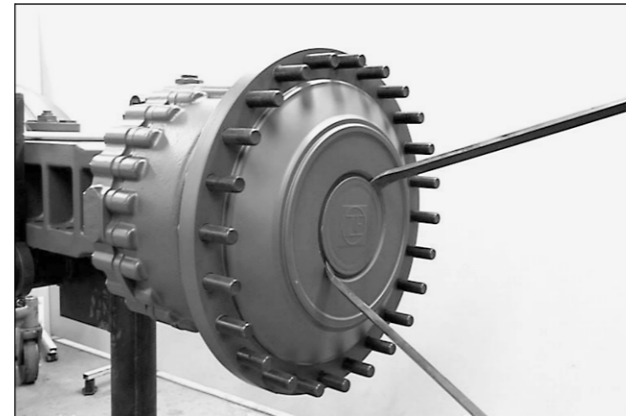
BD00M236



BD00M237

Loosen the screw plugs and drain the oil from the axle casting.

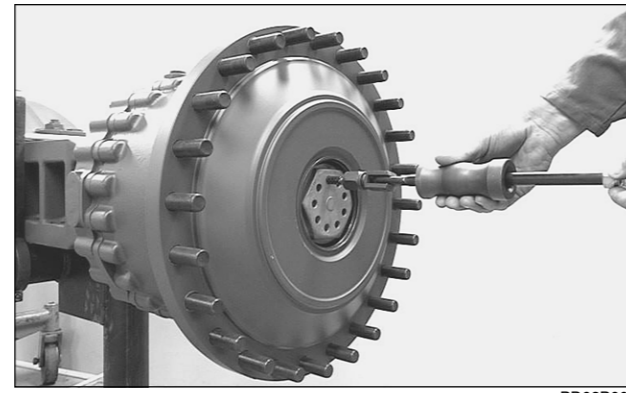
STEP 3



BD00M238

Pry the cover off the wheel end.

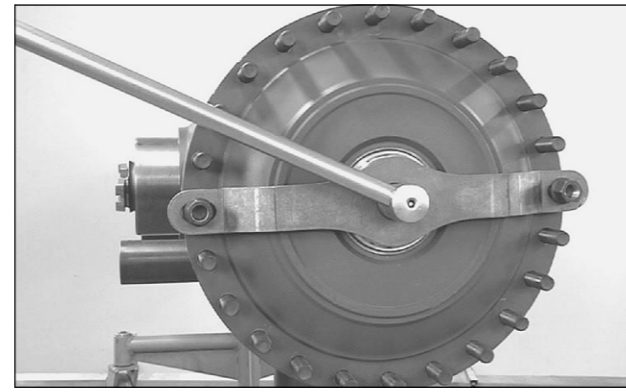
STEP 4



BD03B008

Use 380001582 slide hammer and 380001545 adapter, remove the slotted pin from wheel end lock nut.

STEP 5



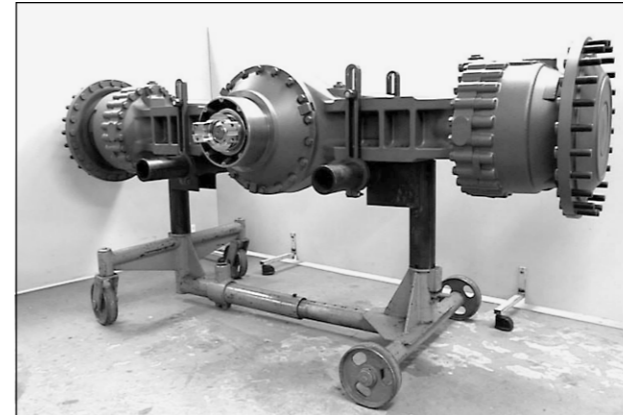
BD03B009

Using 380001571 locknut socket and 380001576 support bracket, loosen and remove the locknut.

WHEEL END AND BRAKES

Disassembly

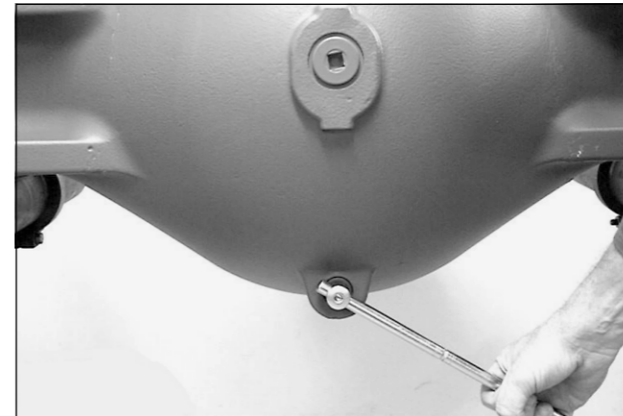
STEP 1



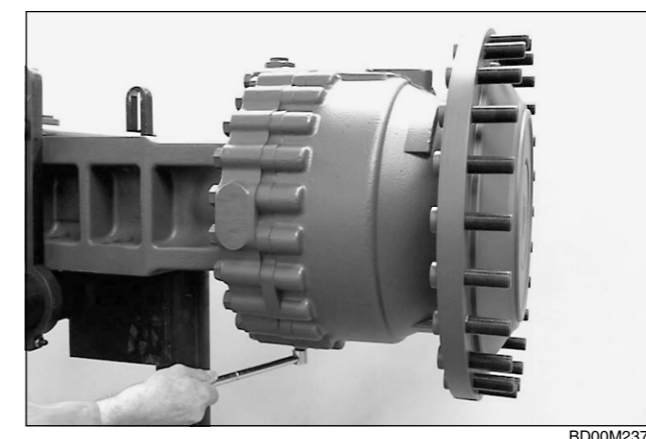
BD00M235

Fasten the axle on a stand.

STEP 2



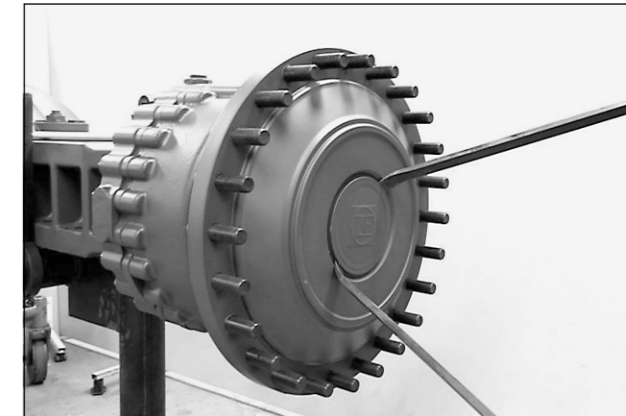
BD00M236



BD00M237

Loosen the screw plugs and drain the oil from the axle casting.

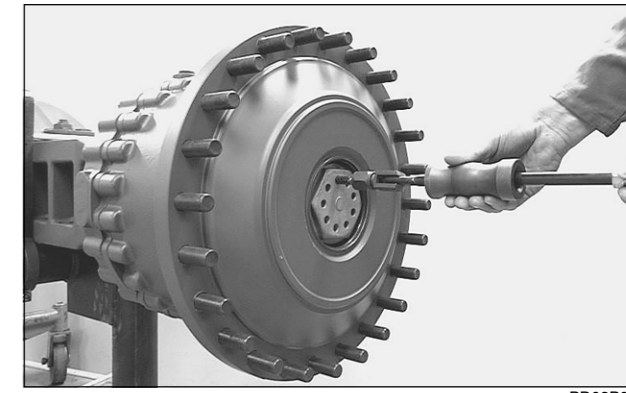
STEP 3



BD00M238

Pry the cover off the wheel end.

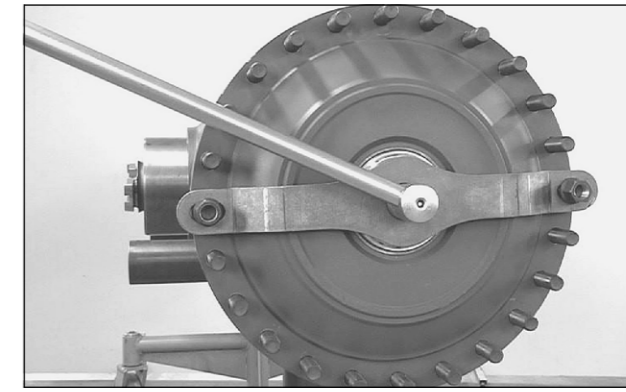
STEP 4



BD03B008

Use 380001582 slide hammer and 380001545 adapter, remove the slotted pin from wheel end lock nut.

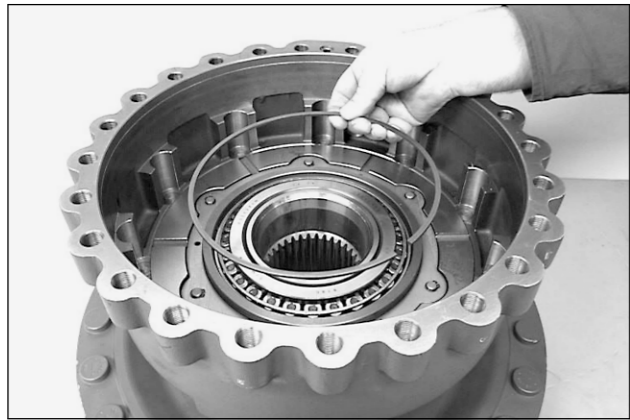
STEP 5



BD03B009

Using 380001571 locknut socket and 380001576 support bracket, loosen and remove the locknut.

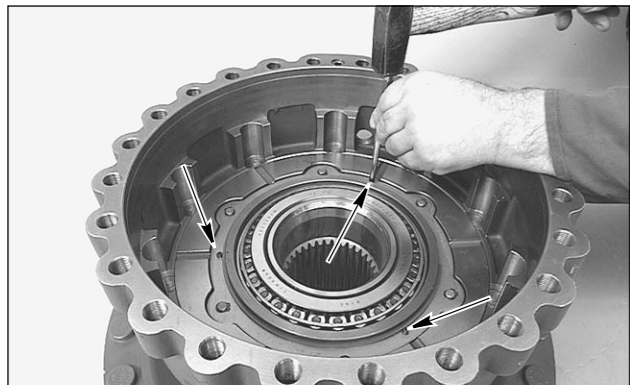
STEP 52



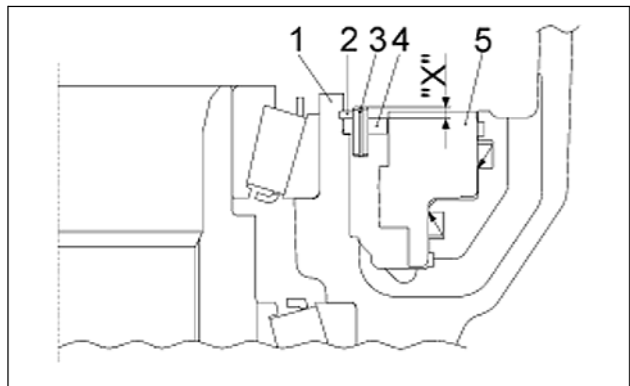
BD00M286

Install the circlip into the brake housing.

STEP 53



BD03B028

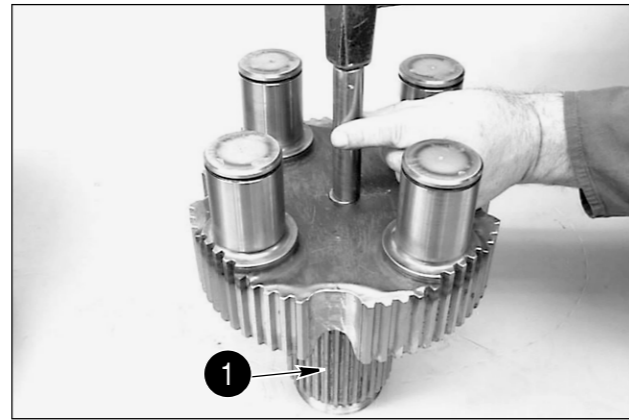


BD03B034

- 1. BRAKE HOUSING
- 2. CIRCLIP
- 3. SLOTTED PIN
- 4. SUPPORT SHIM
- 5. PISTON
- X INSTALLATION DIMENSION
4.0 - 0.5 MM

Drive slotted pins into the bores of the support shim to lock the circlip.

STEP 54

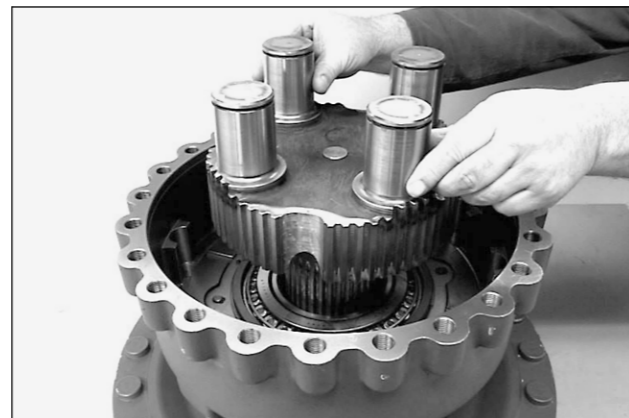


BD00M288

1. SPLINE

Drive the stop bolt into the planet carrier. Then coat the spline with anti-corrosive antiseize.

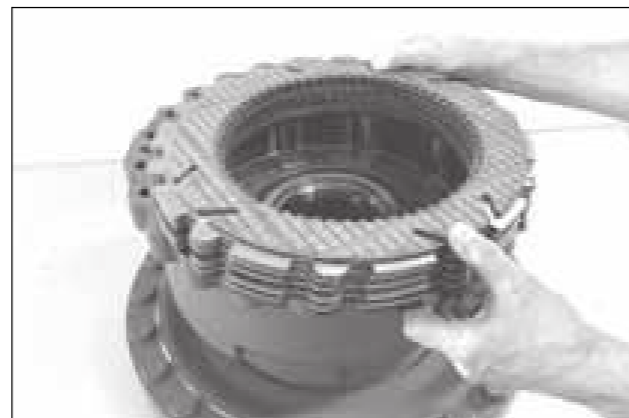
STEP 55



BD00M289

Insert the planet carrier into the spline of the wheel end shaft until contact.

STEP 56

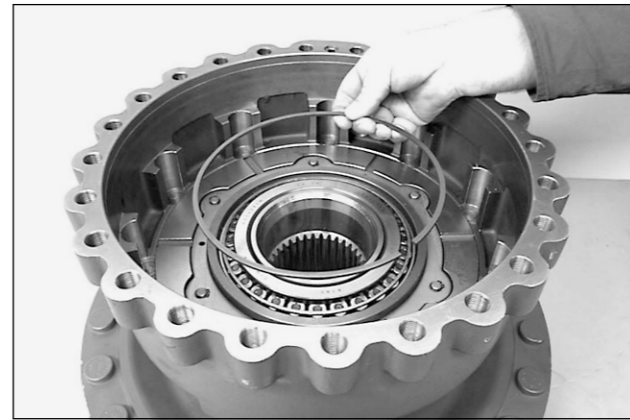


W270-2R009

Mount outer and inner disks (lining disks with paper or sinter lining).

NOTE: Quantity and arrangement of the disks please take related spare parts list.

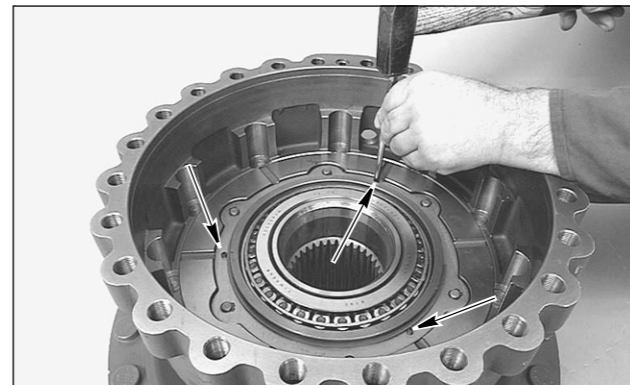
STEP 52



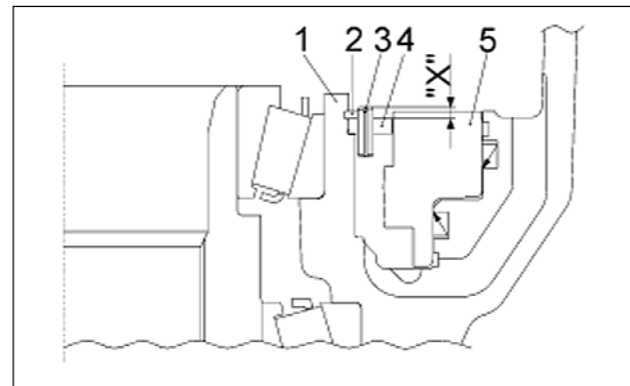
BD00M286

Install the circlip into the brake housing.

STEP 53



BD03B028

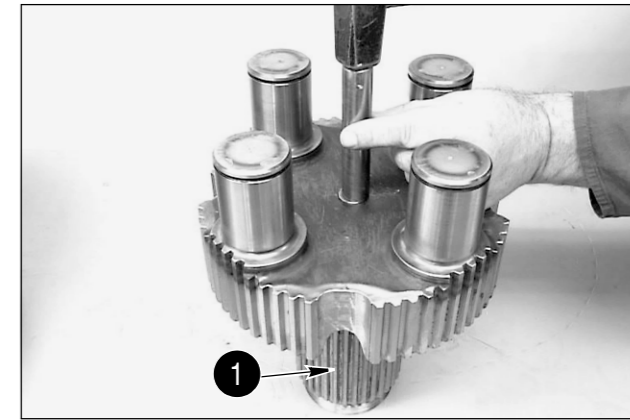


BD03B034

- 1. BRAKE HOUSING
- 2. CIRCLIP
- 3. SLOTTED PIN
- 4. SUPPORT SHIM
- 5. PISTON
- X INSTALLATION DIMENSION
4.0 - 0.5 MM

Drive slotted pins into the bores of the support shim to lock the circlip.

STEP 54

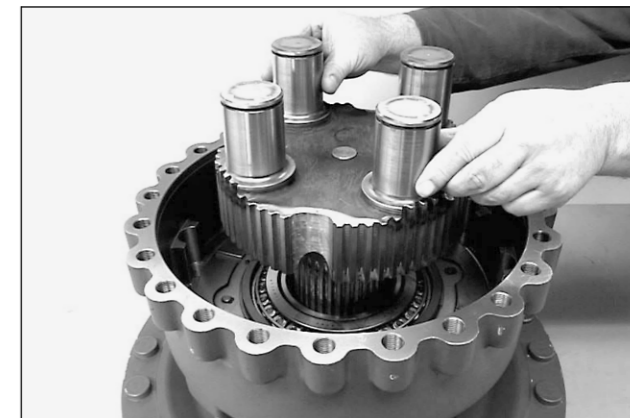


BD00M288

1. SPLINE

Drive the stop bolt into the planet carrier. Then coat the spline with anti-corrosive antiseize.

STEP 55



BD00M289

Insert the planet carrier into the spline of the wheel end shaft until contact.

STEP 56



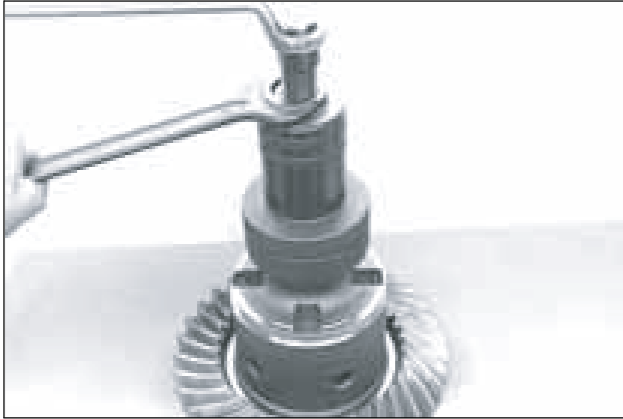
W270-2R009

Mount outer and inner disks (lining disks with paper or sinter lining).

NOTE: Quantity and arrangement of the disks please take related spare parts list.

DISASSEMBLY OF LIMITED SLIP DIFFERENTIAL

STEP 15



W270-2R011

Pull bearing inner ring from the differential housing.

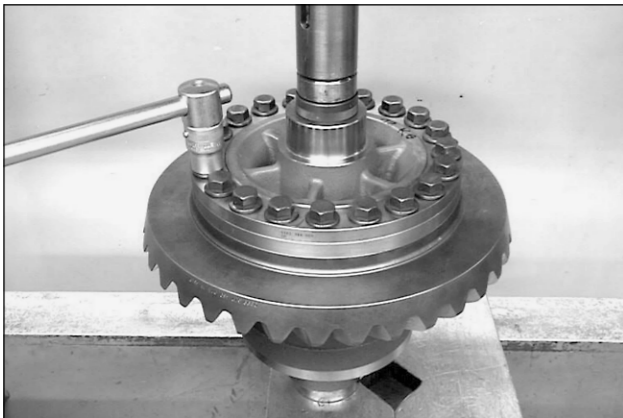
STEP 16



W270-2R012

Pull bearing inner ring from the housing cover.

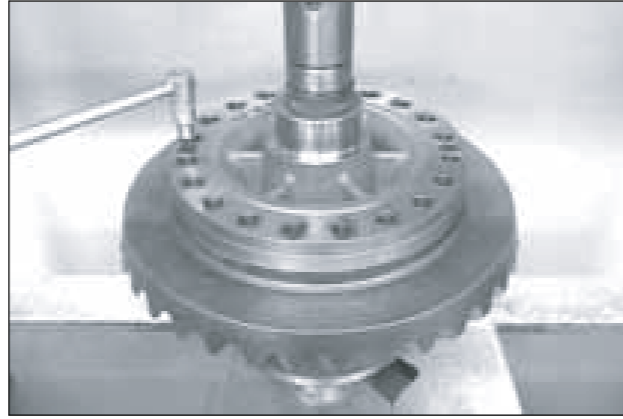
STEP 17



BD00M406

Place the differential in a press to prevent it from turning. Remove the bolts and the released housing cover.

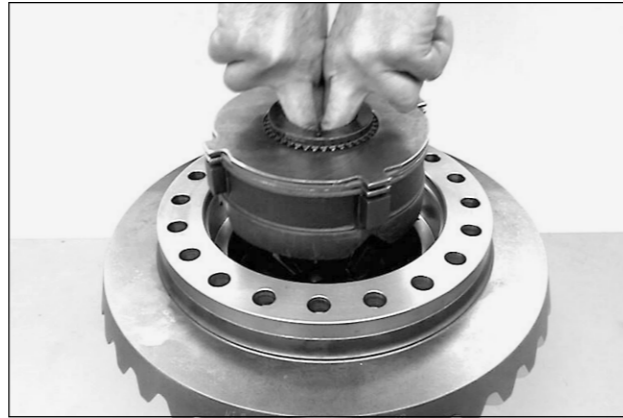
STEP 18



W270-2R013

Loosen cap screws and remove released housing cover.

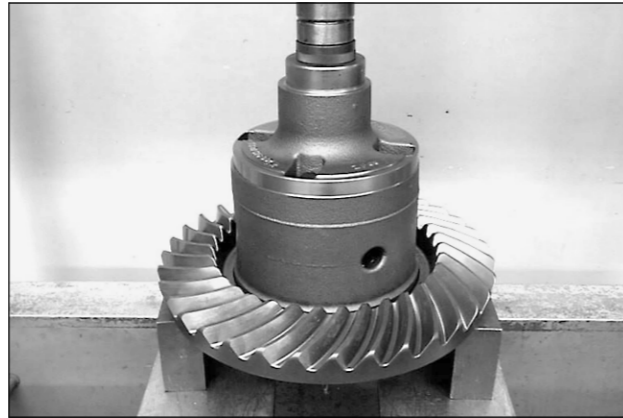
STEP 19



BD00M407

Remove all the single parts from the differential housing.

STEP 20



BD00M408

Press off the ring gear from the differential housing.

DISASSEMBLY OF LIMITED SLIP DIFFERENTIAL

STEP 15



W270-2R011

Pull bearing inner ring from the differential housing.

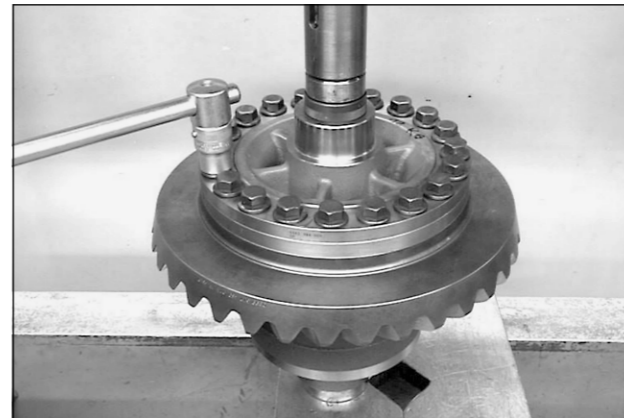
STEP 16



W270-2R012

Pull bearing inner ring from the housing cover.

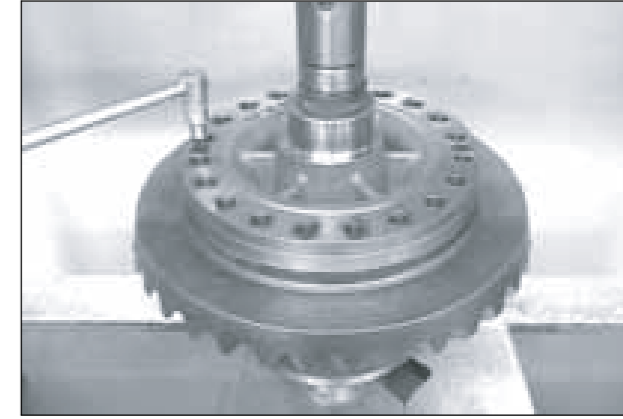
STEP 17



BD00M406

Place the differential in a press to prevent it from turning. Remove the bolts and the released housing cover.

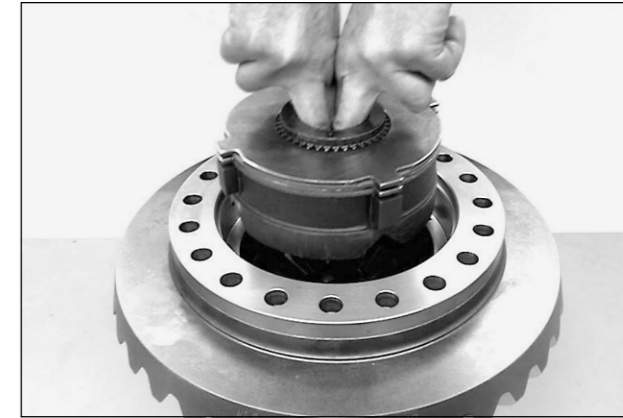
STEP 18



W270-2R013

Loosen cap screws and remove released housing cover.

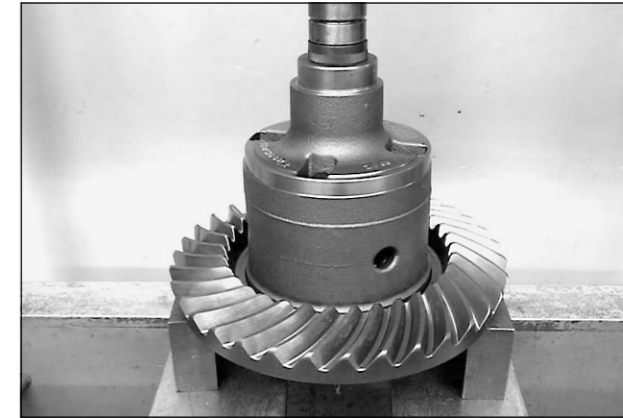
STEP 19



BD00M407

Remove all the single parts from the differential housing.

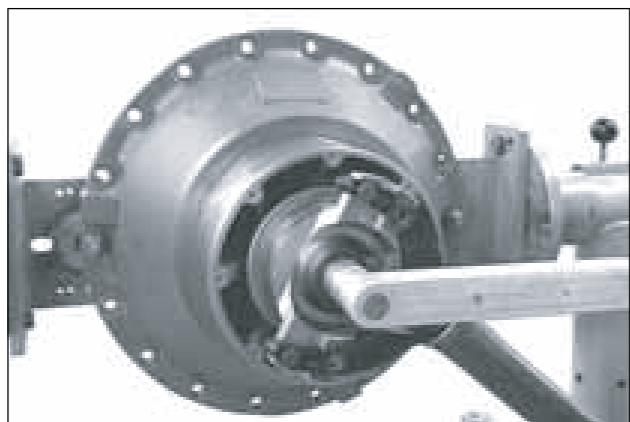
STEP 20



BD00M408

Press off the ring gear from the differential housing.

STEP 65

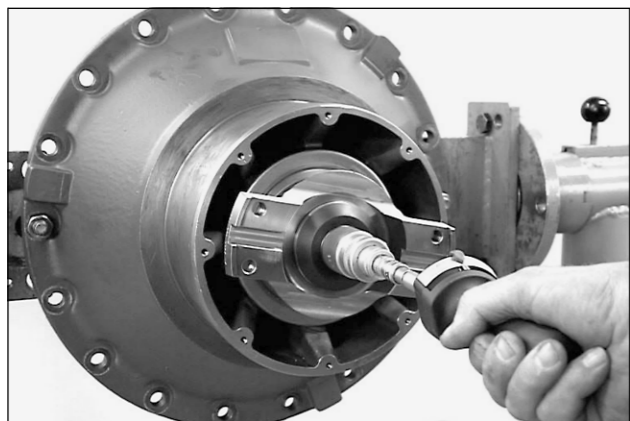


W270-2R033

Unscrew slotted nut by hand and tighten it.
Tightening torque 1200 Nm (885 pound-feet)

NOTE: When tightening rotate the drive pinion in both directions several times.

STEP 66



BD00M362

Check rolling movement. Rolling movement should be 3.5 to 4.5 Nm (2.58 to 3.31 pound-feet).

NOTE: For new bearings it should be tried to achieve the maximum value of the rolling movement.

ATTENTION: If the required rolling movement is not obtained, correct it with an adequate spacer ring, according to the following indications:

- Rolling movement too low - install a thinner spacer ring.
- Rolling movement too high - install a thicker spacer ring.

STEP 67

Then loosen the slotted nut again and pull input flange from the drive pinion.

STEP 68

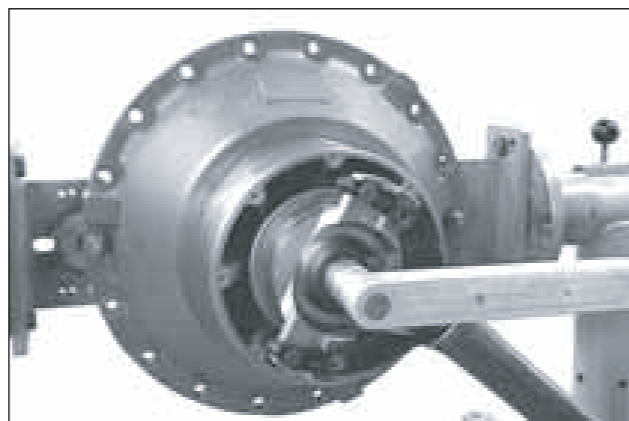


W270-2R034

Install shaft seal with the sealing lip showing to the oil chamber (downwards).

ATTENTION: Just before the installation wet the outer diameter of the shaft seal with a solution of 50% water and 50% mineral spirits. Fill the space between the sealing and dust lip with grease.

STEP 69



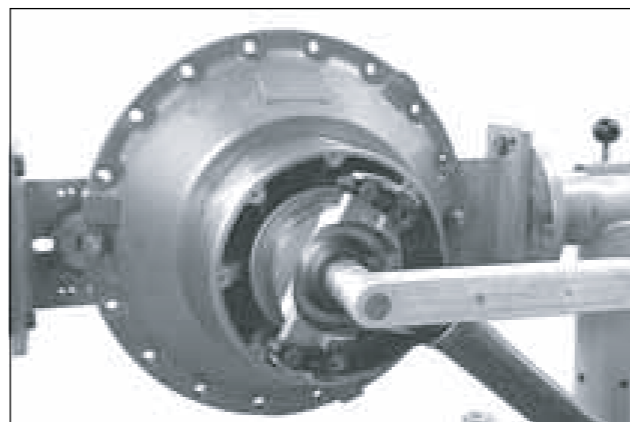
W270-2R035

Assemble input flange and finally fasten it by means of washer and slotted nut.

Tighten torque 1200 Nm (885 pound-feet)

ATTENTION: Apply Loctite, Type No. 262, onto the thread of the locknut.

STEP 65

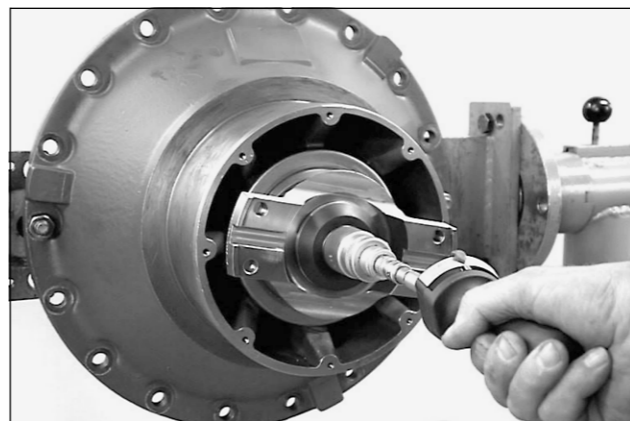


W270-2R033

Unscrew slotted nut by hand and tighten it.
Tightening torque 1200 Nm (885 pound-feet)

NOTE: When tightening rotate the drive pinion in both directions several times.

STEP 66



BD00M362

Check rolling movement. Rolling movement should be 3.5 to 4.5 Nm (2.58 to 3.31 pound-feet).

NOTE: For new bearings it should be tried to achieve the maximum value of the rolling movement.

ATTENTION: If the required rolling movement is not obtained, correct it with an adequate spacer ring, according to the following indications:

- Rolling movement too low - install a thinner spacer ring.
- Rolling movement too high - install a thicker spacer ring.

STEP 67

Then loosen the slotted nut again and pull input flange from the drive pinion.

STEP 68

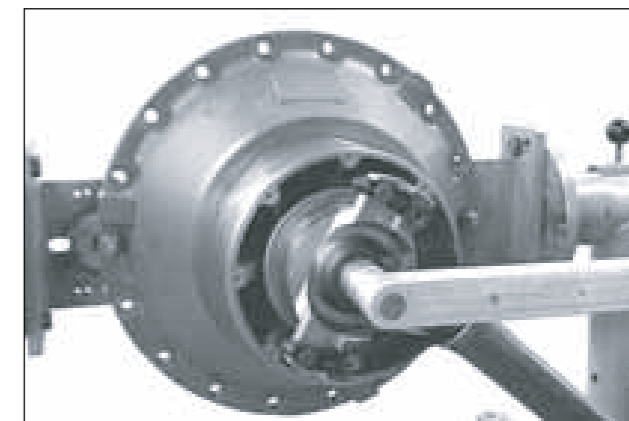


W270-2R034

Install shaft seal with the sealing lip showing to the oil chamber (downwards).

ATTENTION: Just before the installation wet the outer diameter of the shaft seal with a solution of 50% water and 50% mineral spirits. Fill the space between the sealing and dust lip with grease.

STEP 69



W270-2R035

Assemble input flange and finally fasten it by means of washer and slotted nut.

Tighten torque 1200 Nm (885 pound-feet)

ATTENTION: Apply Loctite, Type No. 262, onto the thread of the locknut.

FRONT DRIVE SHAFT

Removal

1. Remove the cap screws that fasten the center drive shaft to the yoke (4) at the rear of the front drive shaft. Use a prybar to disengage the universal joint from the yoke (4) and move the center drive shaft out of the way.
2. Loosen the lock nut (8) and set screw (9) in the center bearing (13) of the housing (12).
3. Remove the self-locking nut (11) and flat washer (10) that fasten the yoke (4) to the rear of the front drive shaft (1).
4. Make an alignment mark on the yoke (4) and the end of the front drive shaft (1) to make sure that the yoke is installed correctly.
5. Use an acceptable puller and remove the yoke (4) from the end of the front drive shaft (1).
6. Remove paint or rust from the rear of the front drive shaft (1) and apply WD40 or similar oil to loosen any rust between the inner race and the front drive shaft (1).
7. Remove the cap screws (2) that fasten the universal joint (3) to the front drive shaft (1).
8. Use a prybar to disengage the front drive shaft (1) from the universal joint (3) and remove the front drive shaft (1). If necessary, use a brass hammer to drive the front drive shaft (1) out of the center bearing.

Installation

1. Apply antiseize compound to the bearing area of the front drive shaft (1), refer to Figure 1.
2. Put the front drive shaft (1) into position on the machine.
3. Fasten the front drive shaft (1) to the universal joint (3) with cap screws (2). Tighten the cap screws (2) to 95 to 108 Nm (70 to 80 pound-feet).
4. Apply antiseize compound to the splines on the front drive shaft (1).
5. Install the yoke (4) so that the alignment marks are aligned. If a new front drive shaft has been installed, make sure this yoke is parallel with yoke at the other end of the front drive shaft.
6. Install the self-locking nut (11) and flat washer (10) that fasten the yoke to the front drive shaft. Tighten the self-locking nut to 339 to 373 Nm (250 to 275 pound-feet).
7. Align the set screw (9) with the slot in the front drive shaft (1).
8. Tighten the set screw (9) until it bottoms out in the slot, loosen the set screw (9) one full turn.
9. Hold the set screw (9) so it will not turn, tighten the lock nut (8).
10. Engage the universal joint of the center drive shaft with the yoke (4).
11. Install the cap screws that fasten the center drive shaft to the yoke (4). Tighten the cap screws to 95 to 108 Nm (70 to 80 pound-feet).

FRONT DRIVE SHAFT

Removal

1. Remove the cap screws that fasten the center drive shaft to the yoke (4) at the rear of the front drive shaft. Use a prybar to disengage the universal joint from the yoke (4) and move the center drive shaft out of the way.
2. Loosen the lock nut (8) and set screw (9) in the center bearing (13) of the housing (12).
3. Remove the self-locking nut (11) and flat washer (10) that fasten the yoke (4) to the rear of the front drive shaft (1).
4. Make an alignment mark on the yoke (4) and the end of the front drive shaft (1) to make sure that the yoke is installed correctly.
5. Use an acceptable puller and remove the yoke (4) from the end of the front drive shaft (1).
6. Remove paint or rust from the rear of the front drive shaft (1) and apply WD40 or similar oil to loosen any rust between the inner race and the front drive shaft (1).
7. Remove the cap screws (2) that fasten the universal joint (3) to the front drive shaft (1).
8. Use a prybar to disengage the front drive shaft (1) from the universal joint (3) and remove the front drive shaft (1). If necessary, use a brass hammer to drive the front drive shaft (1) out of the center bearing.

Installation

1. Apply antiseize compound to the bearing area of the front drive shaft (1), refer to Figure 1.
2. Put the front drive shaft (1) into position on the machine.
3. Fasten the front drive shaft (1) to the universal joint (3) with cap screws (2). Tighten the cap screws (2) to 95 to 108 Nm (70 to 80 pound-feet).
4. Apply antiseize compound to the splines on the front drive shaft (1).
5. Install the yoke (4) so that the alignment marks are aligned. If a new front drive shaft has been installed, make sure this yoke is parallel with yoke at the other end of the front drive shaft.
6. Install the self-locking nut (11) and flat washer (10) that fasten the yoke to the front drive shaft. Tighten the self-locking nut to 339 to 373 Nm (250 to 275 pound-feet).
7. Align the set screw (9) with the slot in the front drive shaft (1).
8. Tighten the set screw (9) until it bottoms out in the slot, loosen the set screw (9) one full turn.
9. Hold the set screw (9) so it will not turn, tighten the lock nut (8).
10. Engage the universal joint of the center drive shaft with the yoke (4).
11. Install the cap screws that fasten the center drive shaft to the yoke (4). Tighten the cap screws to 95 to 108 Nm (70 to 80 pound-feet).

Section 6007

TRANSMISSION CONTROL VALVE

6007

Section 6007

TRANSMISSION CONTROL VALVE

6007

7001

Section 7001

**REMOVAL AND INSTALLATION
OF BRAKE COMPONENTS**

7001

Section 7001

**REMOVAL AND INSTALLATION
OF BRAKE COMPONENTS**

Section 7002

7002

HYDRAULIC BRAKE TROUBLESHOOTING

Section 7002

7002

HYDRAULIC BRAKE TROUBLESHOOTING

- | | | |
|-----------------------------------|---------------------------------|--------------------------------|
| 1. CAP SCREW (T 22 NM (16 LB-FT)) | 13. CAP (T 60 NM (44 LB-FT)) | 25. CHECK VALVE |
| 2. O-RING | 14. SPOOL | 26. CARTRIDGE |
| 3. BUSHING | 15. PLUG (T 10 NM (88.5 LB-IN)) | 27. PLUG (T 60 NM (44 LB-FT)) |
| 4. SLEEVE | 16. PLUG (T 60 NM (44 LB-FT)) | 28. JET |
| 5. SPRING | 17. PLUG (T 22NM (16 LB-FT)) | 29. WVI UNIT |
| 6. SPRING RETAINER | 18. VALVE SEAT | 30. PLUG (T 60 NM (44 LB-FT)) |
| 7. SPRING RETAINER | 19. THROTTLE SCREW | 31. PLUG (T 100 NM (74 LB-FT)) |
| 8. CIRCLIP | 20. PLUG (T 22NM (16 LB-FT)) | 32. RV UNIT |
| 9. SHAFT SEAL | 21. CAP | 33. SPRING RETAINER |
| 10. SLEEVE LVE | 22. SLEEVE | 34. SLEEVE |
| 11. GUIDE RING | 23. SPRING RETAINER | 35. THRUST RING |
| 12. O-RING | 24. SLEEVE | 36. SLEEVE LVV |

- | | | |
|-----------------------------------|---------------------------------|--------------------------------|
| 1. CAP SCREW (T 22 NM (16 LB-FT)) | 13. CAP (T 60 NM (44 LB-FT)) | 25. CHECK VALVE |
| 2. O-RING | 14. SPOOL | 26. CARTRIDGE |
| 3. BUSHING | 15. PLUG (T 10 NM (88.5 LB-IN)) | 27. PLUG (T 60 NM (44 LB-FT)) |
| 4. SLEEVE | 16. PLUG (T 60 NM (44 LB-FT)) | 28. JET |
| 5. SPRING | 17. PLUG (T 22NM (16 LB-FT)) | 29. WVI UNIT |
| 6. SPRING RETAINER | 18. VALVE SEAT | 30. PLUG (T 60 NM (44 LB-FT)) |
| 7. SPRING RETAINER | 19. THROTTLE SCREW | 31. PLUG (T 100 NM (74 LB-FT)) |
| 8. CIRCLIP | 20. PLUG (T 22NM (16 LB-FT)) | 32. RV UNIT |
| 9. SHAFT SEAL | 21. CAP | 33. SPRING RETAINER |
| 10. SLEEVE LVE | 22. SLEEVE | 34. SLEEVE |
| 11. GUIDE RING | 23. SPRING RETAINER | 35. THRUST RING |
| 12. O-RING | 24. SLEEVE | 36. SLEEVE LVV |

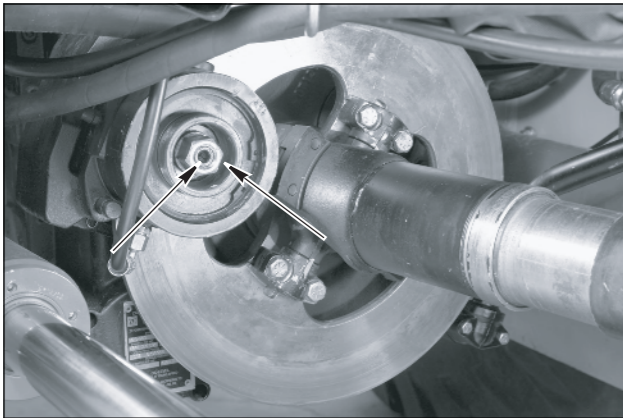
STEP 4

Disengage the parking brake.

NOTE: Hydraulic pressure will not be applied to the parking brake until the parking brake rocker switch is turned off, the service brakes applied and the transmission is put into gear.

- A. Place the parking brake rocker switch in the OFF position.
- B. Apply the service brake and put the machine into gear.
- C. The parking brake light on the cluster will turn off at this time.

Place the transmission back into neutral before proceeding.

STEP 5

BD07A213-01

Turn the adjusting bolt clockwise until both brake pads contact the brake disc, then turn the adjusting bolt counterclockwise one turn. Tighten the jam nut to secure the adjusting bolt.

STEP 6

Install the cover on the parking brake.

STEP 7

Perform the Parking Brake Test Procedure as described in this section.

STEP 8

Remove the articulation lock.

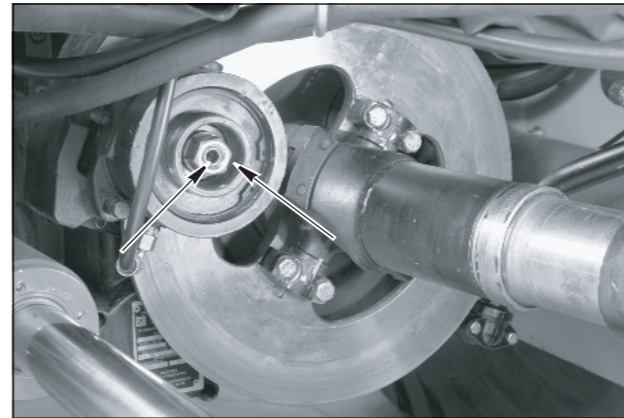
STEP 4

Disengage the parking brake.

NOTE: Hydraulic pressure will not be applied to the parking brake until the parking brake rocker switch is turned off, the service brakes applied and the transmission is put into gear.

- A. Place the parking brake rocker switch in the OFF position.
- B. Apply the service brake and put the machine into gear.
- C. The parking brake light on the cluster will turn off at this time.

Place the transmission back into neutral before proceeding.

STEP 5

BD07A213-01

Turn the adjusting bolt clockwise until both brake pads contact the brake disc, then turn the adjusting bolt counterclockwise one turn. Tighten the jam nut to secure the adjusting bolt.

STEP 6

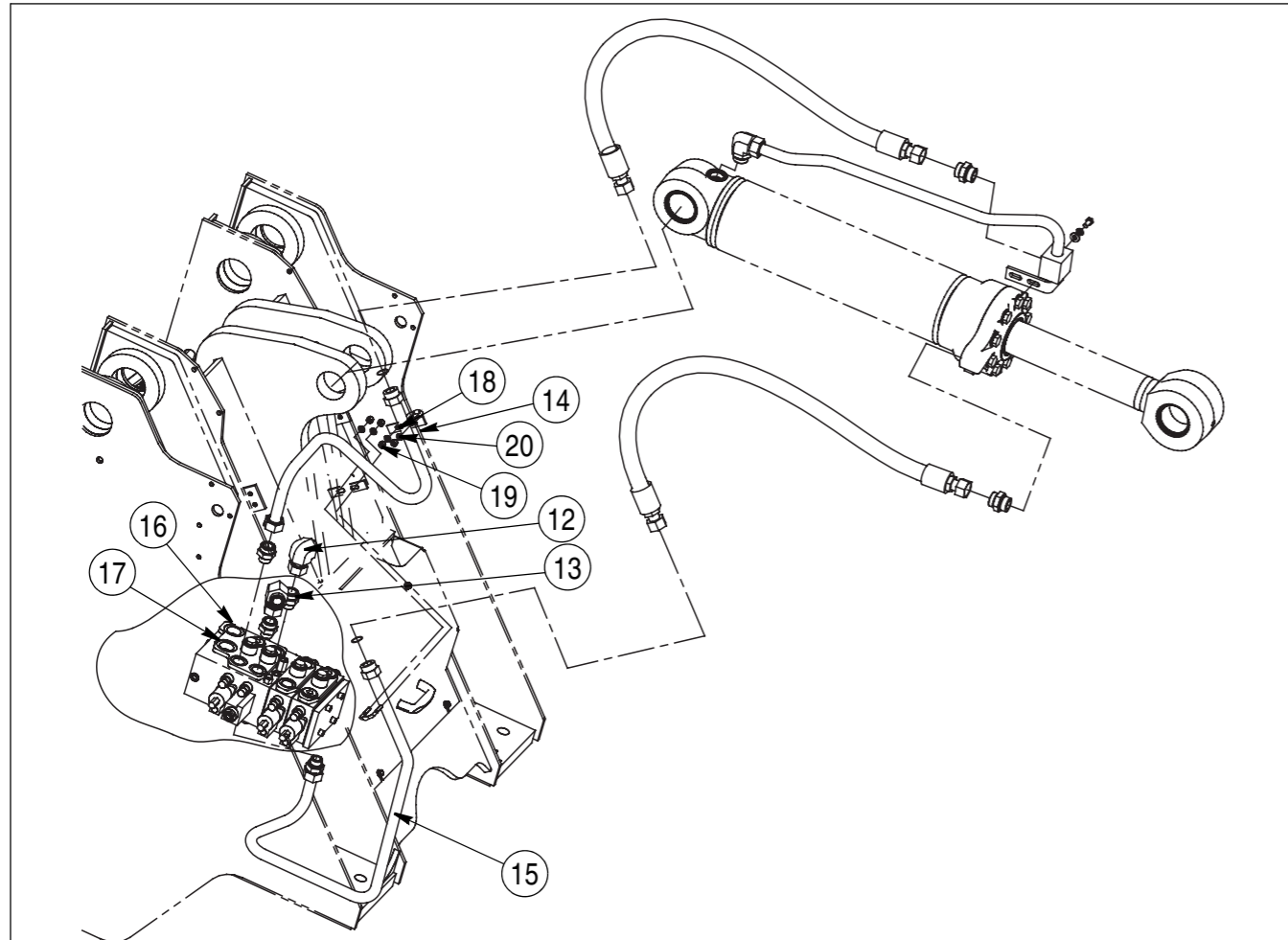
Install the cover on the parking brake.

STEP 7

Perform the Parking Brake Test Procedure as described in this section.

STEP 8

Remove the articulation lock.



W270-6R005

- | | | |
|---------------------------------|--------------------|----------------|
| 12. ELBOW ROD END LEFT LIFT | 15. ROD END BUCKET | 18. U BOLT (2) |
| 13. ELBOW CLOSED END RIGHT LIFT | 16. RETURN PORT | 19. NUT (4) |
| 14. CLOSED END BUCKET | 17. INLET PORT | 20. WASHER (4) |

LOADER CONTROL VALVE LINE CONNECTIONS TOP OF VALVE

STEP 12

Remove the tilt cylinder "U" bolts (18) from the frame.

STEP 13

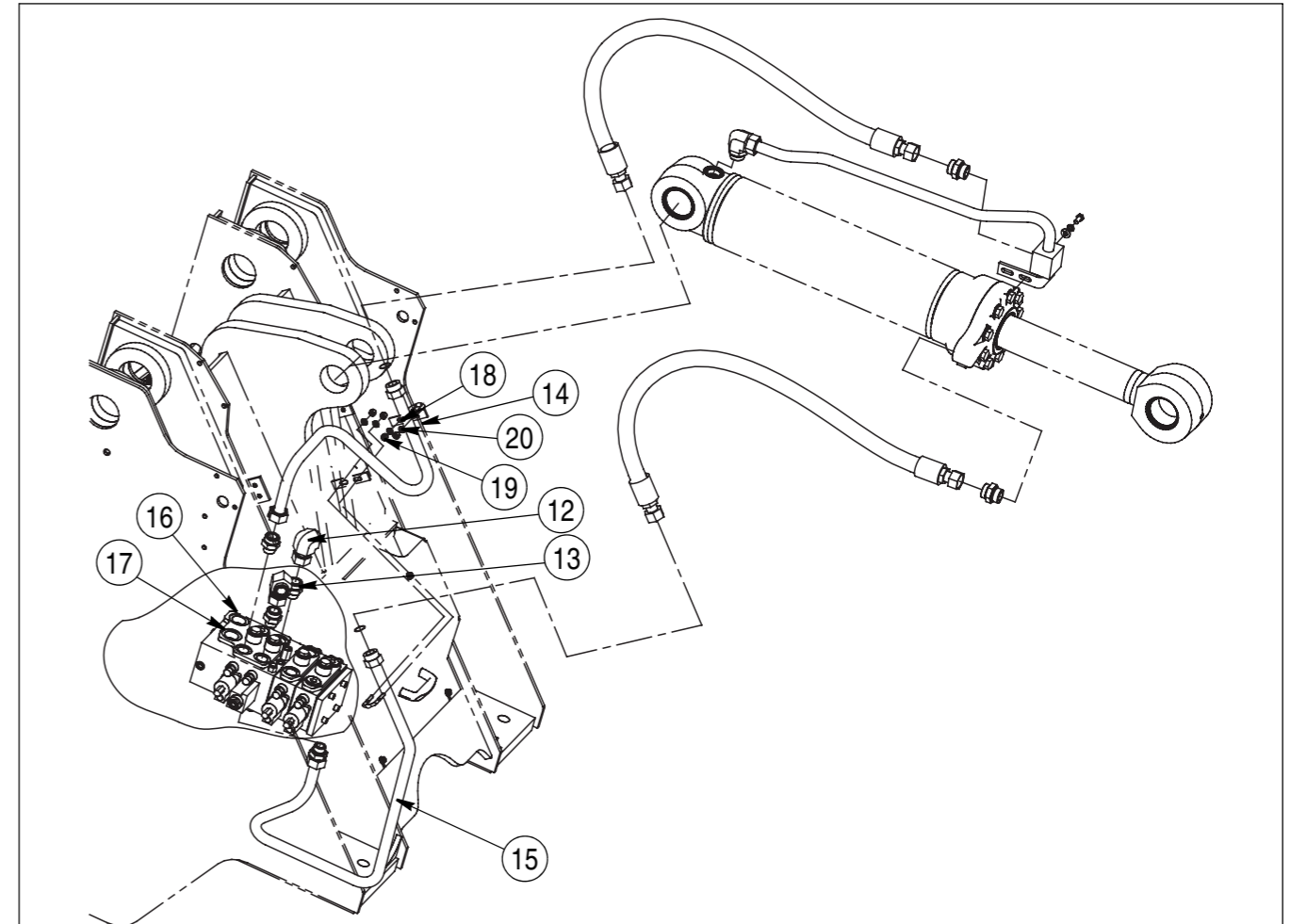
Loosen and remove tilt cylinder lines (14 and 15).

STEP 14

Loosen and remove right lift cylinder line from elbow (13).

STEP 15

Loosen and remove left lift cylinder line from elbow (12).



W270-6R005

- | | | |
|---------------------------------|--------------------|----------------|
| 12. ELBOW ROD END LEFT LIFT | 15. ROD END BUCKET | 18. U BOLT (2) |
| 13. ELBOW CLOSED END RIGHT LIFT | 16. RETURN PORT | 19. NUT (4) |
| 14. CLOSED END BUCKET | 17. INLET PORT | 20. WASHER (4) |

LOADER CONTROL VALVE LINE CONNECTIONS TOP OF VALVE

STEP 12

Remove the tilt cylinder "U" bolts (18) from the frame.

STEP 13

Loosen and remove tilt cylinder lines (14 and 15).

STEP 14

Loosen and remove right lift cylinder line from elbow (13).

STEP 15

Loosen and remove left lift cylinder line from elbow (12).

NOTES

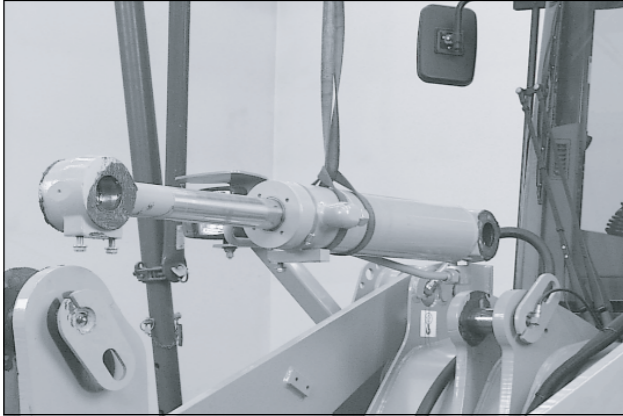
NOTES

Installation

STEP 120

Apply antisieze compound to the bores in the front frame and the bores in the loader arm for the bucket cylinder.

STEP 121



Use acceptable lifting equipment to lower the bucket cylinder into position.

STEP 122



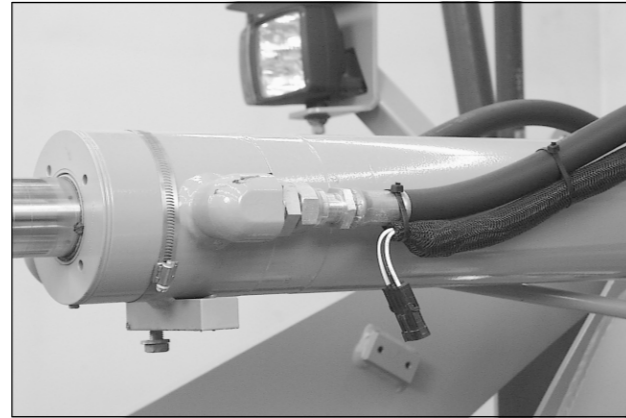
Install the pivot pin to the head end of the bucket cylinder.

STEP 123

Install the spacer, washer and bolt that fasten the pivot pin to the front frame. Tighten the bolt.

NOTE: If a new pivot pin is being installed, connect the grease line to the pivot pin.

STEP 124



Connect the hoses to each side of the bucket cylinder.

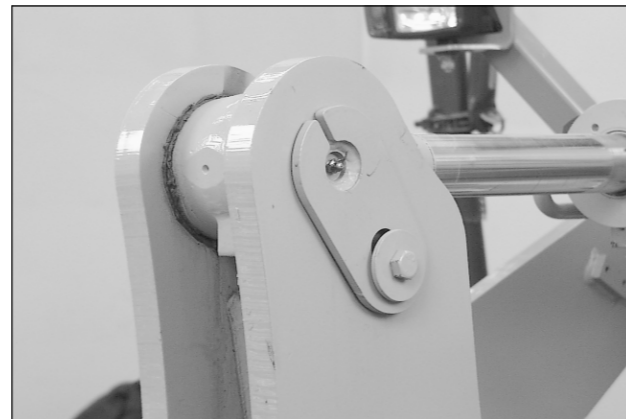
STEP 125

If the rod end of the bucket cylinder is not aligned with the bellcrank, have another person start the engine and run the engine at low idle and use the bucket control lever to SLOWLY move the piston rod eye into alignment with the bellcrank.

STEP 126

Install the pivot pin and stop the engine.

STEP 127



Install the spacer, washer and bolt that fasten the pivot pin to the bellcrank. Tighten the bolt.

STEP 128

Install the wiring harness gaurd (12) with wiring harness, install and tighten bolts and washers (10 and 11), bolts and wahsers (13 and 14), refer to illstation on page 22.

Installation

STEP 120

Apply antisieze compound to the bores in the front frame and the bores in the loader arm for the bucket cylinder.

STEP 121



Use acceptable lifting equipment to lower the bucket cylinder into position.

STEP 122



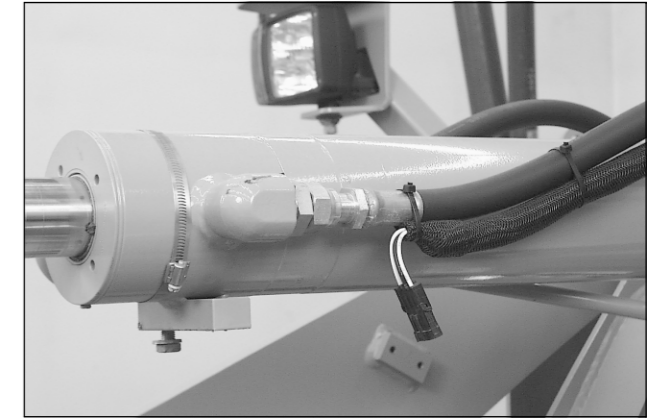
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NOTE: If a new pivot pin is being installed, connect the grease line to the pivot pin.

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Connect the hoses to each side of the bucket cylinder.

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If the rod end of the bucket cylinder is not aligned with the bellcrank, have another person start the engine and run the engine at low idle and use the bucket control lever to SLOWLY move the piston rod eye into alignment with the bellcrank.

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Install the spacer, washer and bolt that fasten the pivot pin to the bellcrank. Tighten the bolt.

STEP 128

Install the wiring harness gaurd (12) with wiring harness, install and tighten bolts and washers (10 and 11), bolts and wahsers (13 and 14), refer to illstation on page 22.

Installation

STEP 190

Lubricate and install new O-rings in the fittings.

STEP 191

Place the fan reversing valve into position on the machine.

STEP 192

Install the washers and nuts (7). Tighten the nuts.

STEP 193

Connect the fan valve inlet hose (3) to the fitting on the fan reversing valve.

STEP 194

Connect the fan valve outlet hose (2) to the elbow on the fan reversing valve.

STEP 195

Connect the fan return hose (4) to the fitting on the fan reversing valve.

STEP 196

Connect the fan supply hose (5) to the fitting on the fan reversing valve.

STEP 197

Connect the electrical connector to the solenoids (1) on the fan reversing valve.

STEP 198

Turn off the vacuum pump and disconnect from the hydraulic reservoir.

STEP 199

Check the level of the hydraulic oil in the reservoir.

STEP 200

Start the engine and run the engine at low idle for two minutes.

STEP 201

Stop the engine and check for hydraulic oil leakage at the fan reversing valve.

STEP 202

NOTE: Check the level of the hydraulic oil in the reservoir and add as required. Tighten the filler cap on the reservoir.

Installation

STEP 190

Lubricate and install new O-rings in the fittings.

STEP 191

Place the fan reversing valve into position on the machine.

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Install the washers and nuts (7). Tighten the nuts.

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Connect the fan valve inlet hose (3) to the fitting on the fan reversing valve.

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Check the level of the hydraulic oil in the reservoir.

STEP 200

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STEP 201

Stop the engine and check for hydraulic oil leakage at the fan reversing valve.

STEP 202

NOTE: Check the level of the hydraulic oil in the reservoir and add as required. Tighten the filler cap on the reservoir.

TESTING AND ADJUSTING PUMP 2 DIFFERENTIAL PRESSURE

Pressure Check

STEP 1



W270-1R006

1. ARTICULATION LOCK

Install articulation lock.

WARNING: Keep clear of this area when engine is running. Machine could pivot unless the transport and service link is in its LOCKED position. After servicing is completed, unlock the transport and service link and secure in place on the rear frame.

SA069

STEP 2

Make sure that the temperature of the hydraulic oil is at least 54°C to 57°C (129°F to 135°F). The following is the procedure for heating the hydraulic oil.

- To measure the oil temperature with the instrument cluster:
 - A. Press the down arrow key until the info screen with temperatures that need to be monitored are on.
- To heat the hydraulic oil do the following:
 - A. Apply the service brake.
 - B. Start the engine and run at high idle.
 - C. Hold the bucket control lever in the ROLLBACK position while raising and lowering the lift arms from ground level to full height.
 - D. Continue this procedure until the temperature of the hydraulic oil is 54° to 57°C (129° to 135°F).

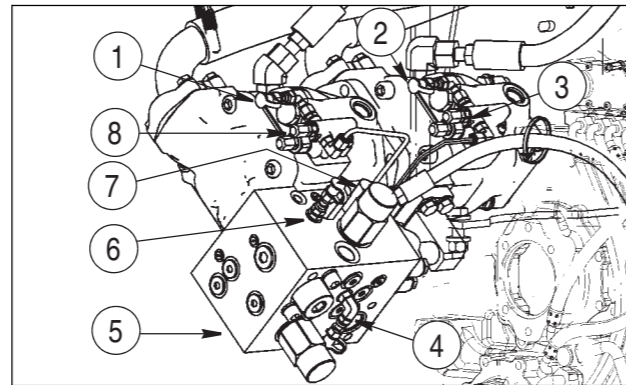
STEP 3

After heating oil to operating temperature, lower bucket to the ground, turn off the engine, and turn key to "RUN" position and operate joystick and relieve the pressure in the hydraulic system and pilot accumulator. Turn ignition switch to OFF.

WARNING: Before doing any maintenance on the hydraulic system, make sure that all hydraulic pressure has been released by operating the control levers several times and the hydraulic reservoir air pressure has been released. Failure to do so could cause serious injury.

CSM120

STEP 4



BS06N368

1. PUMP 2 LOAD SENSE PRESSURE TAP
2. PUMP 1 LOAD SENSE PRESSURE TAP
3. PUMP 1 LOAD SENSE PRESSURE ADJUSTMENT
4. PUMP 1 MAIN LINE PRESSURE TAP (G1)
5. STEERING PRIORITY VALVE
6. PUMP 2 MAIN LINE PRESSURE TAP (G2)
7. STEERING RELIEF PRESSURE ADJUSTMENT
8. PUMP 2 LOAD SENSE PRESSURE ADJUSTMENT

Connect two 69 bar (1000 psi) test gauges. One to pump 2 main line pressure tap G2 (6) on the top left face of the priority valve. And the other to pump 2 load sense pressure tap (1) on the top of the pump furthest from the transmission.

IMPORTANT: Do not steer or operate loader controls while the gauges are connected, gauges could be damaged.

STEP 5

Start the engine and run at low idle.

TESTING AND ADJUSTING PUMP 2 DIFFERENTIAL PRESSURE

Pressure Check

STEP 1



W270-1R006

1. ARTICULATION LOCK

Install articulation lock.

WARNING: Keep clear of this area when engine is running. Machine could pivot unless the transport and service link is in its LOCKED position. After servicing is completed, unlock the transport and service link and secure in place on the rear frame.

SA069

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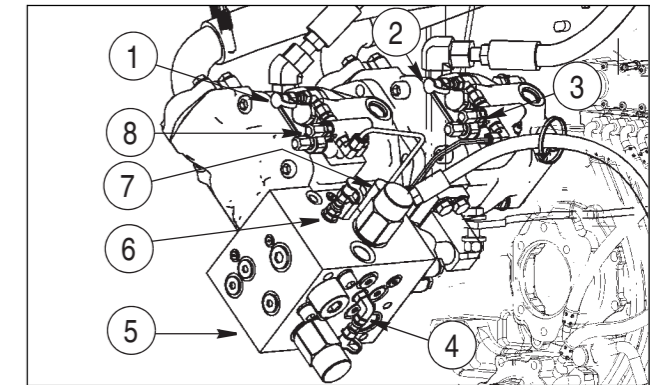
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CSM120

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BS06N368

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3. PUMP 1 LOAD SENSE PRESSURE ADJUSTMENT
4. PUMP 1 MAIN LINE PRESSURE TAP (G1)
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STEP 5

Start the engine and run at low idle.

TESTING THE RIDE CONTROL

STEP 1

Move the machine to a clear level surface with clearance for full lift arm and bucket movement.

STEP 2

Install the articulation lock, start the machine, activate the parking brake.

STEP 3

With the pilot controller in neutral, set the ride control rocker switch on the right side console to the “Always On” position and observe the switch lamp, the lamp should illuminate.

STEP 4

Set the ride control rocker switch to the “Off” position and observe the switch lamp, the lamp should go out.

NOTE: *This indicates that the switch is operating correctly and has power, if the switch does not illuminate see section 4002 and troubleshoot the electrical system for the ride control.*

STEP 5

Raise the lift arms to the top of their travel and dump the bucket.

NOTE: *Keep rocker switch in the “Off” position during this steps 5, 6, 7.*

STEP 6

Dump the bucket until it hits the dump stops. Hold the bucket in the dump position for 5 to 10 seconds.

NOTE: *This will charge the ride control accumulator.*

STEP 7

Lower the lift arms and roll the bucket back to a carry position. Do not leave the lift arms or the bucket on their stops, place the pilot control lever in the neutral position.

STEP 8

Set the ride control rocker switch to the “Always On” position. The lift arms should rise 15 to 30 cm (6 to 12 inches) with an empty bucket.

NOTE: *Test results will be for a machine with a empty factory bucket and no attachments.*

STEP 9

If there is little or no lift arm raise, the test may have been done too slowly. The elapsed time between step 6 and step 8 should not exceed six seconds.

NOTE: *If test was done to slowly repeat in the allotted time.*

STEP 10

If test was completed in the allotted time and the lift arms still do not rise, test the nitrogen charge in the accumulator, see section 8013.

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FLUSHING WATER FROM THE HYDRAULIC SYSTEM

1. Start and run the engine at 1500 rpm (r/min).
2. Completely retract the cylinders of all attachments on the machine. Angle the blade to the right, the right cylinder will be fully retracted and the left will be fully extended. Stop the engine.

 **WARNING:** *If retracting the cylinder rods causes the attachments to be raised, block the attachments in place before proceeding to the next step!*

39-4

NOTE: *Any attachment or part of an attachment that is raised must be supported with acceptable equipment to prevent the attachment from falling.*

3. Move each control lever in both directions to release pressure in the hydraulic circuits.
4. Loosen and remove the filler cap from the reservoir.
5. Drain the hydraulic oil from the reservoir.
 - A. See Section 1002 for capacity specifications.
 - B. Have available acceptable equipment to drain the hydraulic oil.
 - C. Remove the drain plug from the bottom of the reservoir.
6. Remove the hydraulic filter elements from the machine.
7. Install new hydraulic filter elements on the machine.
8. Install the drain plug in the bottom of the reservoir.
9. Fill the hydraulic reservoir with hydraulic fluid. See Section 1002 for specifications.
10. Disconnect the line from the OPEN end and CLOSED end of each cylinder.
11. Be sure all control levers are in the NEUTRAL position.
12. Start and run the engine at low idle.

IMPORTANT: *Check the oil level in the hydraulic reservoir frequently while doing step 13. Have another person hold a container under the hydraulic lines while you do step 13.*


13. Slowly move each control lever in both directions until oil begins to flow from the open line. Hold the control lever in place until clean oil flows from the open line.
14. Stop the engine.
15. Connect the system line to the CLOSED end of each cylinder.
16. Connect a suitable drain line to the OPEN end of each cylinder and place the other end in an acceptable container for contaminated oil.
17. Start the engine and run the engine at low idle.
18. Slowly and completely extend all cylinders. As the piston rod comes in/out of the cylinder, oil will be pushed out of the OPEN end of the cylinders.

NOTE: *Any attachment or part of an attachment that is raised must be supported with acceptable equipment to prevent the attachment from falling.*

19. Support any attachments that will be in the RAISED position.
20. Stop the engine.
21. Disconnect the drain lines and connect the system lines to the cylinders.
22. Check the oil level in the hydraulic reservoir. Add oil as required. See Section 1002 for specifications.
23. Install the filler cap on the reservoir.
24. Remove the hydraulic filter elements from the machine.
25. Install new hydraulic filter elements on the machine.
26. Start and run the engine at 1500 rpm (r/min), operate each hydraulic circuit to completely extend and retract the cylinders.
27. Stop the engine and check for leaks. Check the oil level in the hydraulic reservoir. Add oil as required. See Section 1002 for specifications.

FLUSHING WATER FROM THE HYDRAULIC SYSTEM

1. Start and run the engine at 1500 rpm (r/min).
2. Completely retract the cylinders of all attachments on the machine. Angle the blade to the right, the right cylinder will be fully retracted and the left will be fully extended. Stop the engine.

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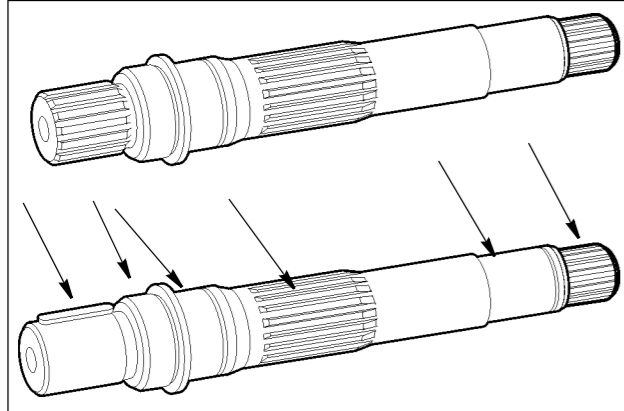
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Inspection

STEP 16

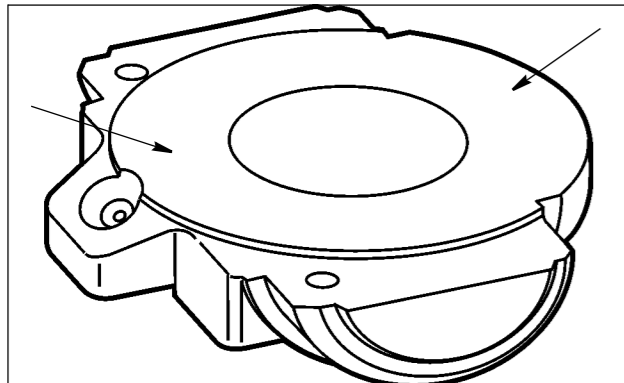
Clean all parts in cleaning solvent. Be careful not to remove the alignment marks made during disassembly.

STEP 17



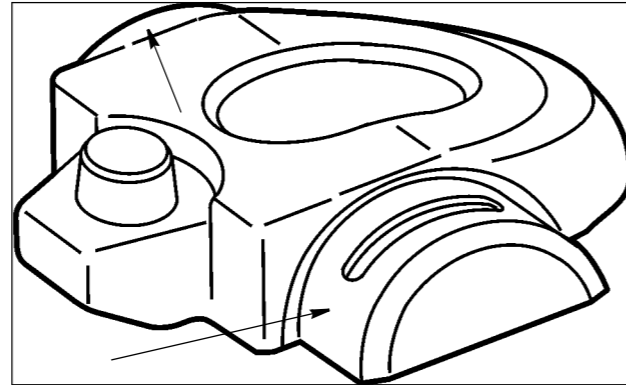
Check for wear on the splines, seal areas for grooves, bearing areas for scaring, and key set.

STEP 18



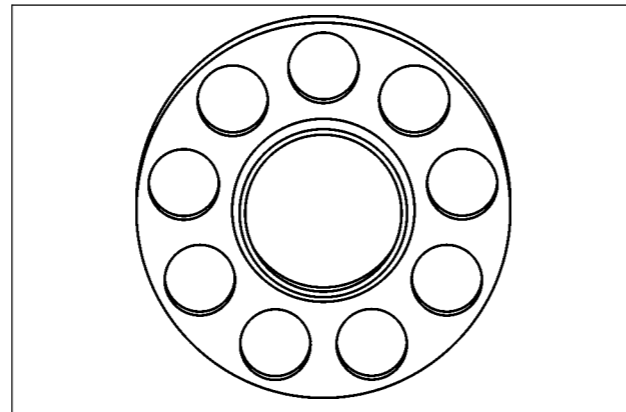
Check the surface that the pistons contact for grooves and scaring.

STEP 19



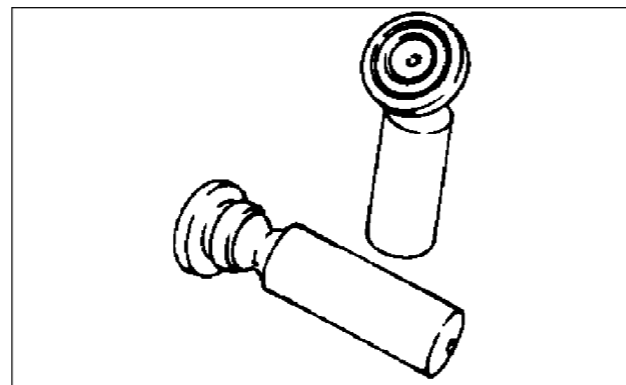
Check the bearing surface.

STEP 20



Check that the retaining plate is free of grooves and that there is no sign of wear.

STEP 21



Check the sliding surface for scratches or metal deposits, check the tightness of the cup on the piston.

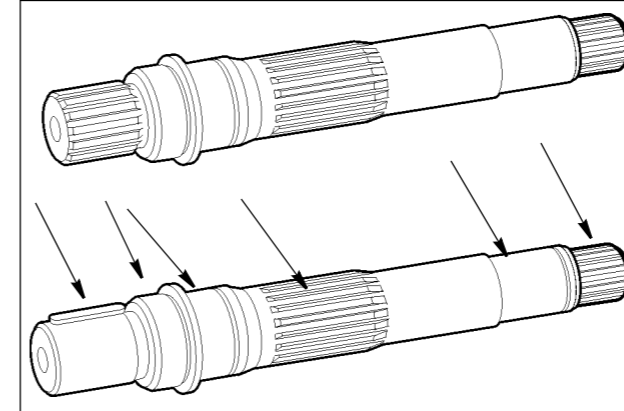
NOTE: *If a piston needs to be replaced, all of the pistons must be replaced.*

Inspection

STEP 16

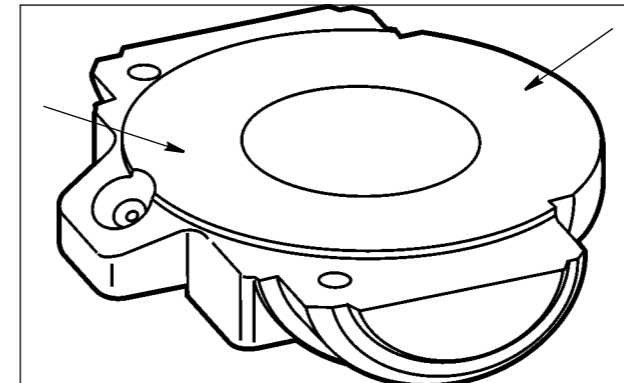
Clean all parts in cleaning solvent. Be careful not to remove the alignment marks made during disassembly.

STEP 17



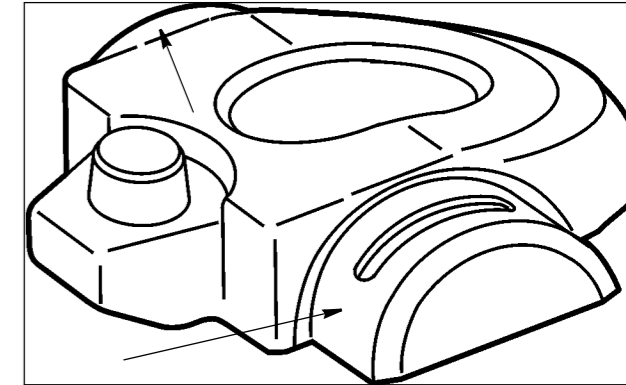
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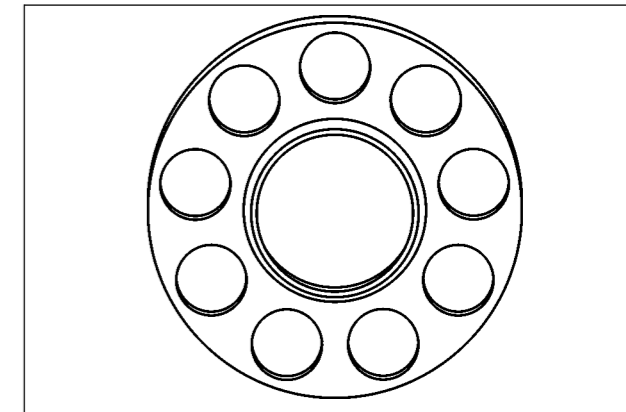
Check the surface that the pistons contact for grooves and scaring.

STEP 19



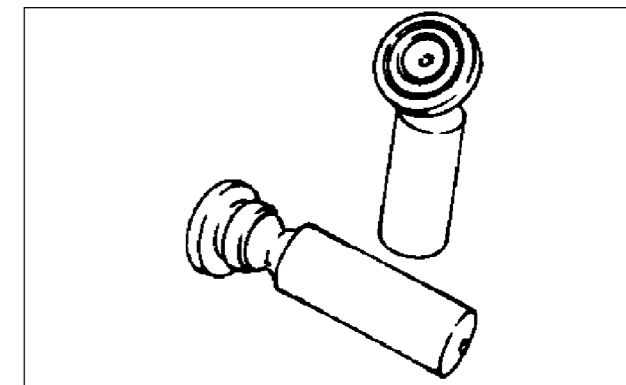
Check the bearing surface.

STEP 20



Check that the retaining plate is free of grooves and that there is no sign of wear.

STEP 21



Check the sliding surface for scratches or metal deposits, check the tightness of the cup on the piston.

NOTE: *If a piston needs to be replaced, all of the pistons must be replaced.*

SPECIFICATIONS

Manufacturer Rexroth

Special Torques

End plate mounting bolts..... 70 Nm (51.5 pound feet)
 Pressure relief, flow limit, and pilot pressure reducing valves..... 20 to 25 Nm (177 to 221 pound inches)
 Allen head plugs..... 240 Nm (177 pound feet)
 Allen head locking screw..... 100 Nm (73.7 pound feet)
 Allen head cover screws (short)..... 10.4 Nm (92 pound inches)
 Allen head cover screws (long) 6 Nm (53 pound inches)
 Anticavitation valves..... 100 Nm (73.7 pound feet)
 Combination anticavitation and circuit relief..... 200 Nm (147.5 pound feet)

Circuit relief valve pressure setting

Auxiliary A and B port290 bar (4206 psi)
 Bucket A and B port290 bar (4206 psi)
 Main relief valve248 to 252 bar (3596 to 3654 psi)

SPECIFICATIONS

Manufacturer Rexroth

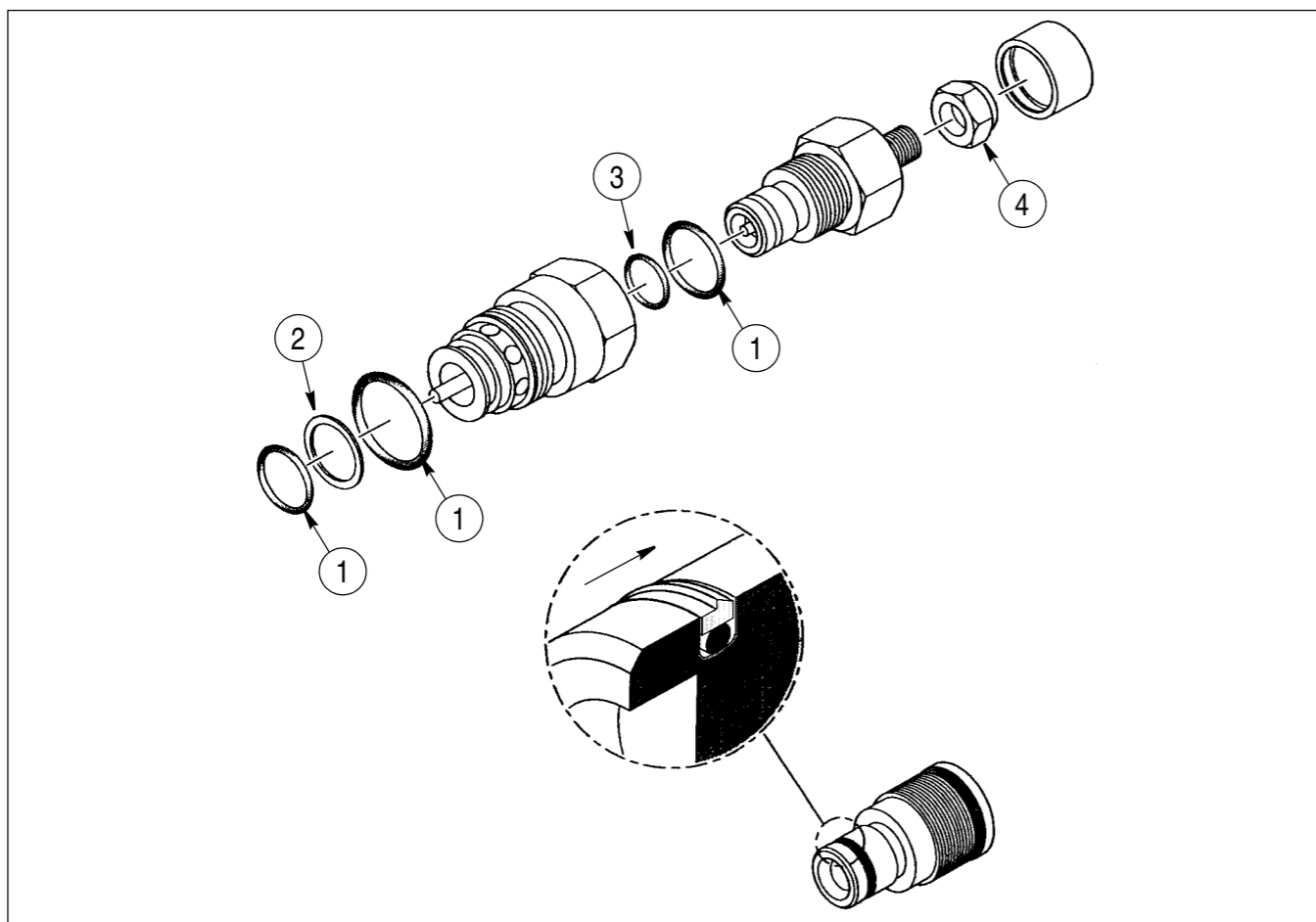
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STEP 22

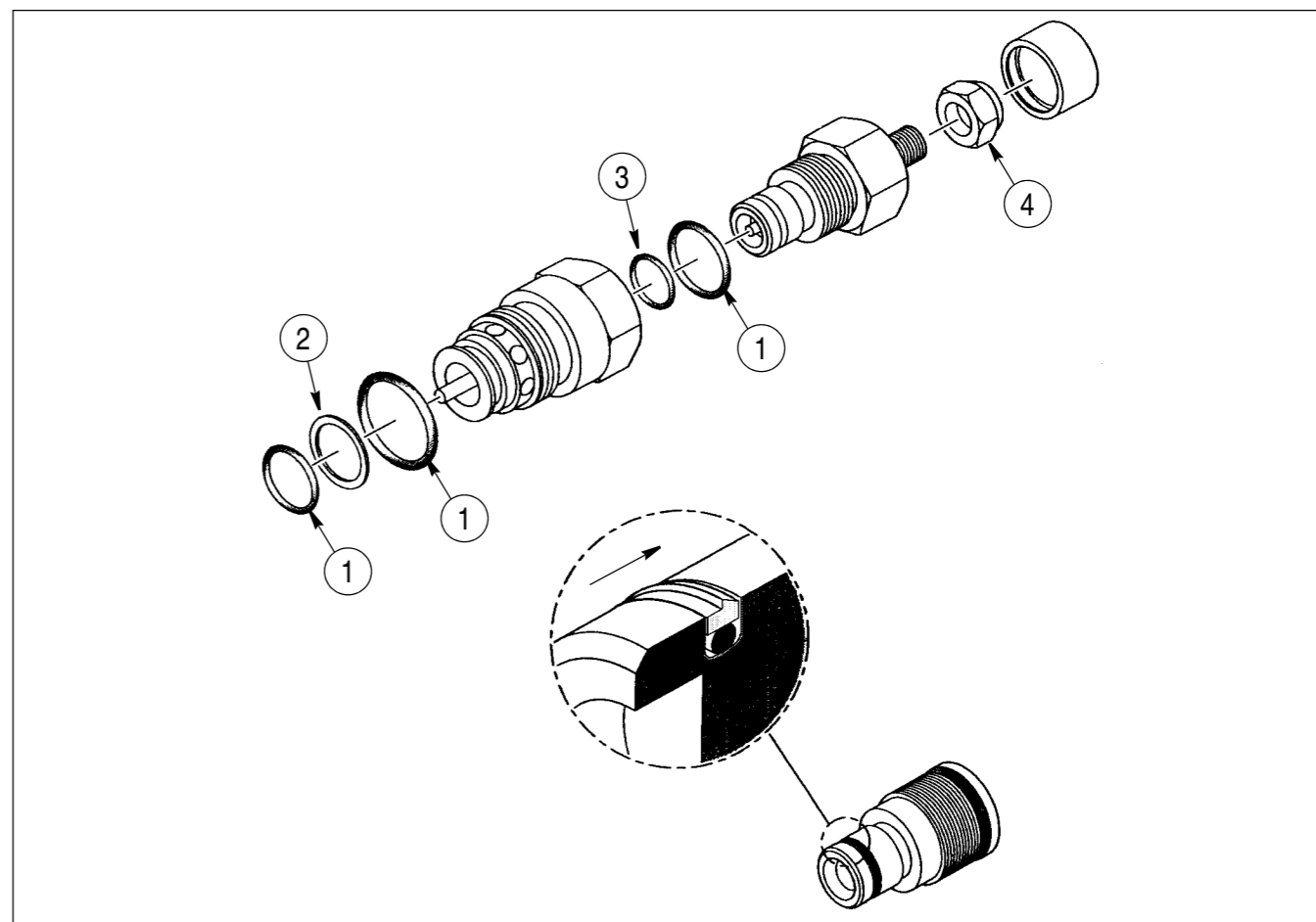


BS03C032

- 1. O-RINGS
- 2. THRUST RING
- 3. SPOOL SEAL
- 4. LOCK NUT

Remove and discard O-rings and thrust rings from anticavitation and circuit relief valves (21 and 35).

STEP 22



BS03C032

- 1. O-RINGS
- 2. THRUST RING
- 3. SPOOL SEAL
- 4. LOCK NUT

Remove and discard O-rings and thrust rings from anticavitation and circuit relief valves (21 and 35).

Assembly

NOTE: If a new gland is being used, put the part number of the cylinder on the new gland.

1. Install the bushing (7) in the gland (3), refer to Figure 1.
2. Install the wide seal (5) in the gland (3). The wide seal (5) is to be installed so that the lips of the wide seal (5) are toward the bushing (7). The wide seal (5) can be difficult to install.
3. Install a new wiper (4) in the gland (3). The lips of the wiper (4) must be toward the outside end of the gland (3).
4. Install the narrow seal (6) in the gland (3). The side of the narrow seal (6) with the groove must be toward the bushing (7).
5. Install a new backup ring (9) in the groove on the outside of the gland (3). If both sides of the backup ring (9) are not flat, the side that is not flat must be toward the small end of the gland (3).
6. Install the O-ring (8) next to the backup ring (9) in the groove on the outside of the gland (3). The O-ring (8) must be toward the small end of the gland (3).
7. Remove any marks and sharp edges on the chamfer at the end of the piston rod (19). Make sure that the piston rod (19) is clean.
8. Lubricate the bore of the gland (3) and the piston rod (19) with clean oil.
9. Push the gland (3) onto the piston rod (19). If necessary, use a soft hammer to drive the gland (3) onto the piston rod (19).
10. Put a support below and near the end of the piston rod (19). Use a shop cloth between the support and the piston rod (19) to prevent damage to the piston rod (19).
11. Install a new backup ring (18) in the groove in the ID of the piston (12). If both sides of the backup ring (18) are not flat, the side that is not flat must be toward the O-ring (17).
12. Install a new O-ring (17) in the groove in the ID of the piston (12) next to the backup ring (18).
13. Install the other new backup ring (16) in the groove in the ID of the piston (12) next to the O-ring (17). If both sides of the backup ring (16) are not flat, the side that is not flat must be toward the O-ring (17).
14. Lubricate the ID of the piston (12) with clean oil.

15. Start the piston (12) onto the piston rod (19). Turn the piston (12) onto the piston rod (19) until the piston (12) is seated against the shoulder of the piston rod (19).
16. If none of the holes in the piston (12) align with the holes in the piston rod (19), turn the piston (12) counterclockwise until one of the holes in the piston (12) aligns with one of holes in the piston rod (19). Do not turn the piston (12) more than 90 degrees. Refer to Figure 2 for pin placement and hole alignment.

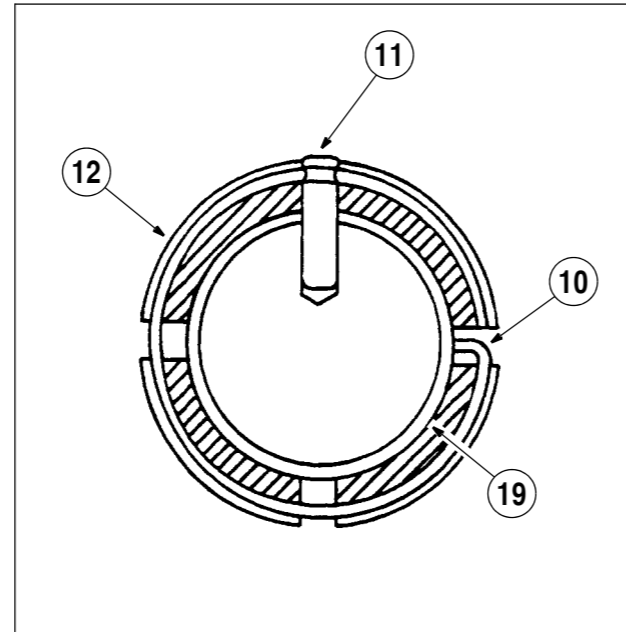


FIGURE 2. PISTON AND PISTON ROD HOLE ALIGNMENT

17. Install the pin (11) in the piston (12) and the piston rod (19).
18. Install the retaining ring (10) in the pin (11).
19. Install a new wear ring (15) in the wide groove on the OD of the piston (12), refer to Figure 1.
20. Install a new seal (13) in the groove on the OD of the piston (12).
21. Install the backup ring (14) on top of the seal (13).
22. Fasten the tube (22) in an acceptable repair stand or other holding equipment. Be careful to prevent damage to the tube (22).
23. Lubricate the inside of the tube (22) and the outside of the piston (12) with clean oil.
24. Push the piston (12) straight into the tube (22).
25. Lubricate the O-ring (8) on the gland (3) with clean oil.

Assembly

NOTE: If a new gland is being used, put the part number of the cylinder on the new gland.

1. Install the bushing (7) in the gland (3), refer to Figure 1.
2. Install the wide seal (5) in the gland (3). The wide seal (5) is to be installed so that the lips of the wide seal (5) are toward the bushing (7). The wide seal (5) can be difficult to install.
3. Install a new wiper (4) in the gland (3). The lips of the wiper (4) must be toward the outside end of the gland (3).
4. Install the narrow seal (6) in the gland (3). The side of the narrow seal (6) with the groove must be toward the bushing (7).
5. Install a new backup ring (9) in the groove on the outside of the gland (3). If both sides of the backup ring (9) are not flat, the side that is not flat must be toward the small end of the gland (3).
6. Install the O-ring (8) next to the backup ring (9) in the groove on the outside of the gland (3). The O-ring (8) must be toward the small end of the gland (3).
7. Remove any marks and sharp edges on the chamfer at the end of the piston rod (19). Make sure that the piston rod (19) is clean.
8. Lubricate the bore of the gland (3) and the piston rod (19) with clean oil.
9. Push the gland (3) onto the piston rod (19). If necessary, use a soft hammer to drive the gland (3) onto the piston rod (19).
10. Put a support below and near the end of the piston rod (19). Use a shop cloth between the support and the piston rod (19) to prevent damage to the piston rod (19).
11. Install a new backup ring (18) in the groove in the ID of the piston (12). If both sides of the backup ring (18) are not flat, the side that is not flat must be toward the O-ring (17).
12. Install a new O-ring (17) in the groove in the ID of the piston (12) next to the backup ring (18).
13. Install the other new backup ring (16) in the groove in the ID of the piston (12) next to the O-ring (17). If both sides of the backup ring (16) are not flat, the side that is not flat must be toward the O-ring (17).
14. Lubricate the ID of the piston (12) with clean oil.

15. Start the piston (12) onto the piston rod (19). Turn the piston (12) onto the piston rod (19) until the piston (12) is seated against the shoulder of the piston rod (19).
16. If none of the holes in the piston (12) align with the holes in the piston rod (19), turn the piston (12) counterclockwise until one of the holes in the piston (12) aligns with one of holes in the piston rod (19). Do not turn the piston (12) more than 90 degrees. Refer to Figure 2 for pin placement and hole alignment.

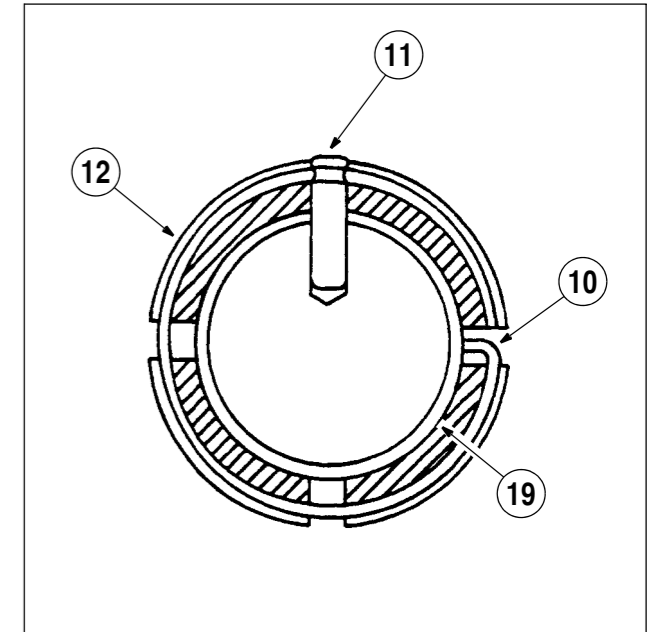


FIGURE 2. PISTON AND PISTON ROD HOLE ALIGNMENT

17. Install the pin (11) in the piston (12) and the piston rod (19).
18. Install the retaining ring (10) in the pin (11).
19. Install a new wear ring (15) in the wide groove on the OD of the piston (12), refer to Figure 1.
20. Install a new seal (13) in the groove on the OD of the piston (12).
21. Install the backup ring (14) on top of the seal (13).
22. Fasten the tube (22) in an acceptable repair stand or other holding equipment. Be careful to prevent damage to the tube (22).
23. Lubricate the inside of the tube (22) and the outside of the piston (12) with clean oil.
24. Push the piston (12) straight into the tube (22).
25. Lubricate the O-ring (8) on the gland (3) with clean oil.

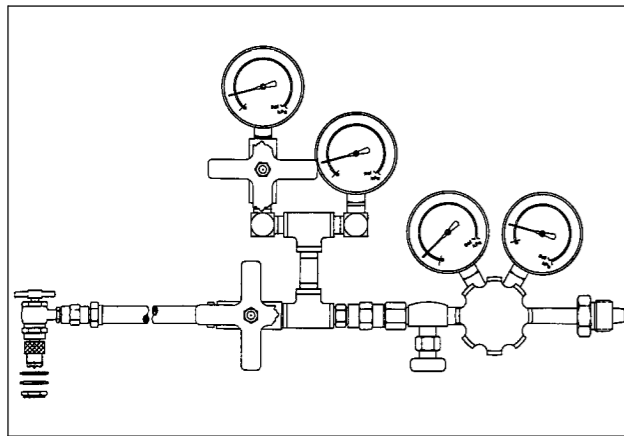
SPECIFICATIONS

Ride Control Accumulator Dry Nitrogen Pressure See chart on page 8
 Ride Control Accumulator Fluid Capacity 3.79 liters (231 cu. inch)
 Ride Control Accumulator Maximum Operating Pressure 248.4 bar (3600 psi)

ACCUMULATOR SPECIAL TORQUES

Accumulator Gas Charging Valve Cap 13.6 Nm (10 pound-feet)
 Gas Charging Valve 88 to 102 Nm (65 to 75 pound-feet)
 Cap screws for the protection bracket 54 to 61 Nm (480 to 540 pound-inches)
 Gland 163 to 176 Nm (120 to 130 pound-feet)

SPECIAL TOOLS



94L95

380001737 NITROGEN ACCUMULATOR CHARGING KIT



B786441M

380001738 GLAND WRENCH

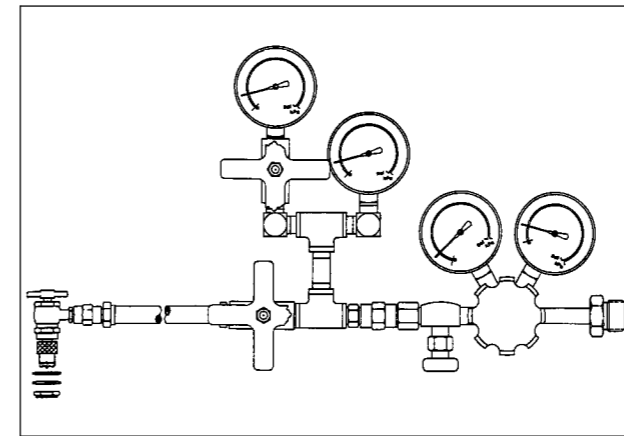
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94L95

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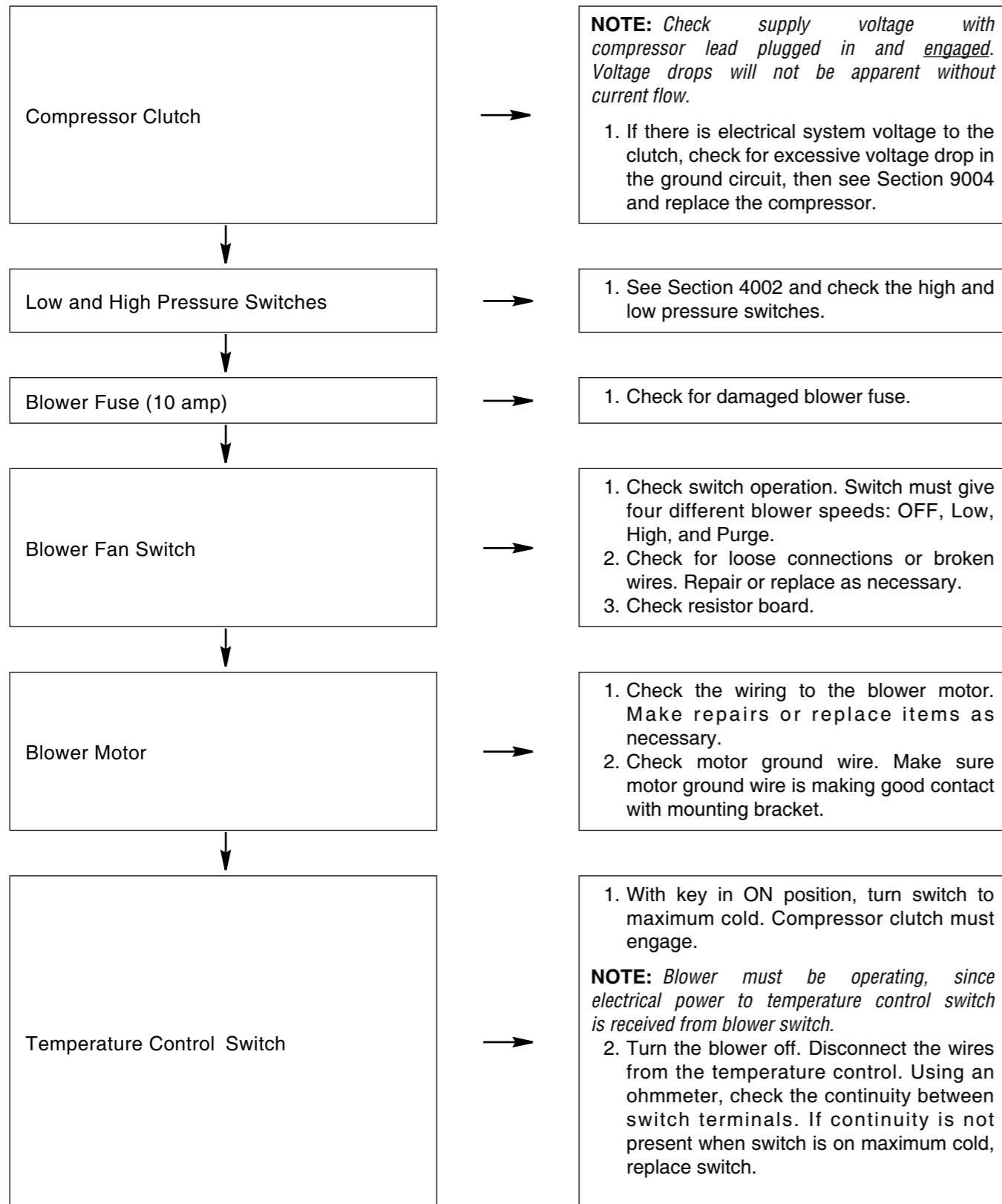
SECTION INDEX
MOUNTED EQUIPMENT

Section Title	Section Number
Air Conditioning Troubleshooting and System Checks for Systems with HFC134a Refrigerant	9002
Air Conditioning System Service	9003
Removal and Installation of Air Conditioning and Heater Components	9004
Loader	9006
Rollover Protective Structure (ROPS) Cab Structural Frame (CSF)	9007
Cab Glass Installation	9010

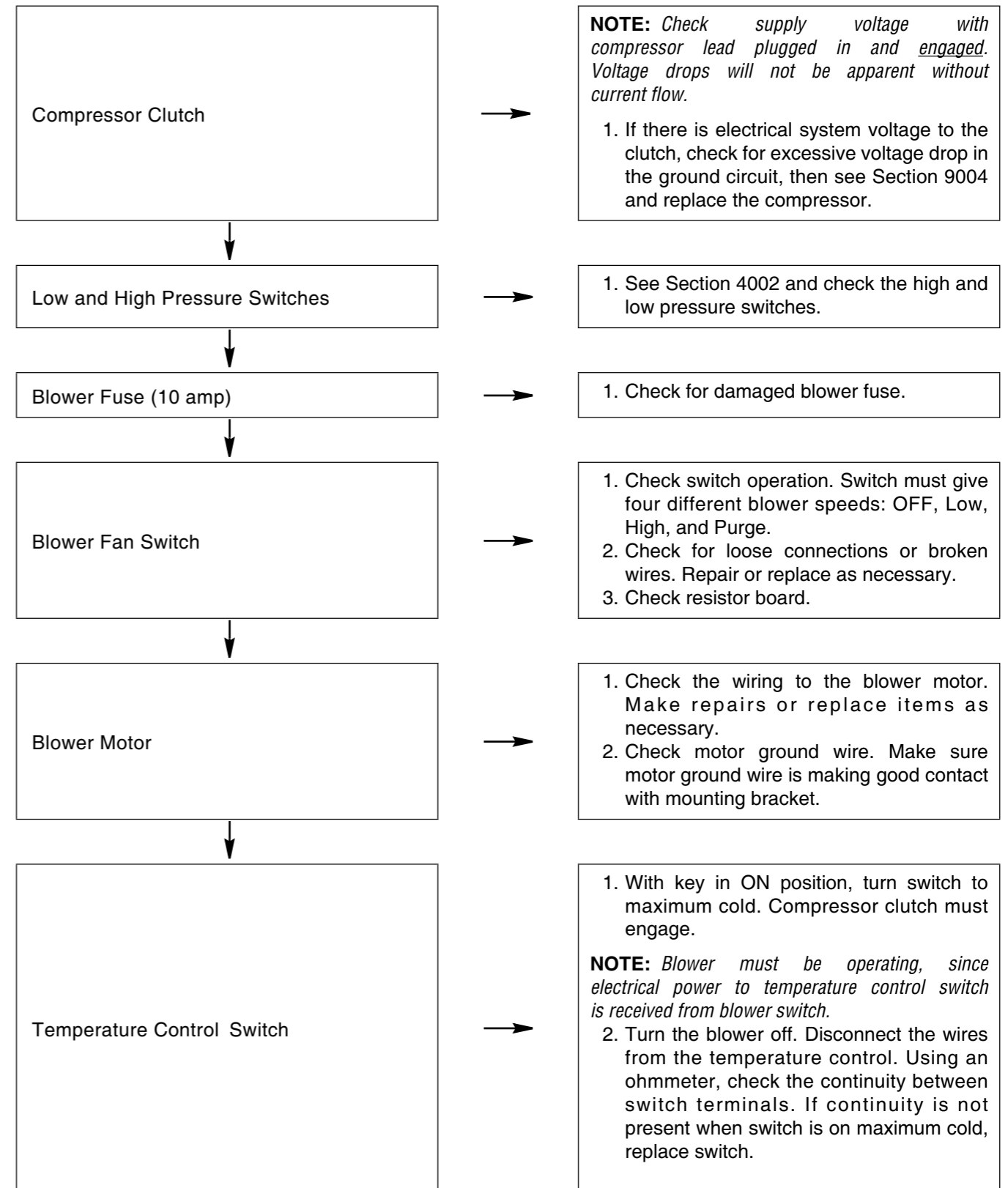
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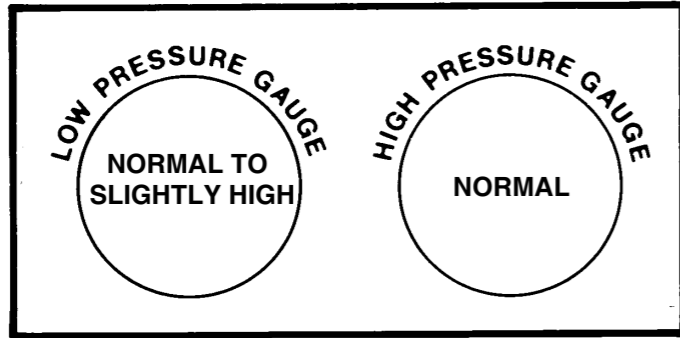
Blower and Compressor Clutch Check



Blower and Compressor Clutch Check

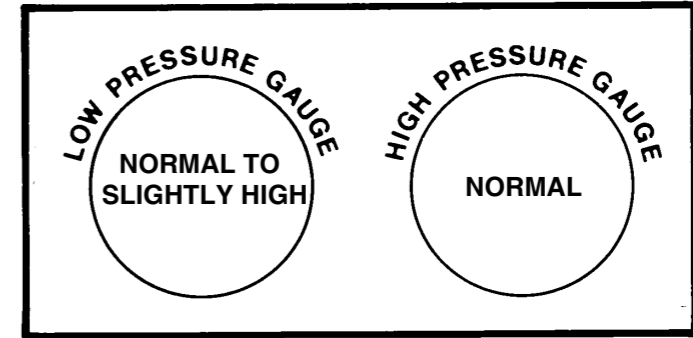


PROBLEM: NOT ENOUGH COOLING



SEE PRESSURE - TEMPERATURE CHART ON PAGE 14 476L7

PROBLEM: NOT ENOUGH COOLING



SEE PRESSURE - TEMPERATURE CHART ON PAGE 14 476L7

Air in the System - Indications:

A. Suction line warm to your hand.
 B. Discharge air from heater/evaporator only a little cool.



1. Test system for leaks. See page 11. Possible leak has let air enter; check compressor seal carefully.
2. Discharge system of refrigerant. See Section 9003.
3. Repair system leak as necessary.
4. Replace receiver-drier.
5. Check compressor oil level.
6. Remove air and moisture from the system. See Section 9003.
7. Charge system with new refrigerant. See Section 9003.

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SPECIFICATIONS

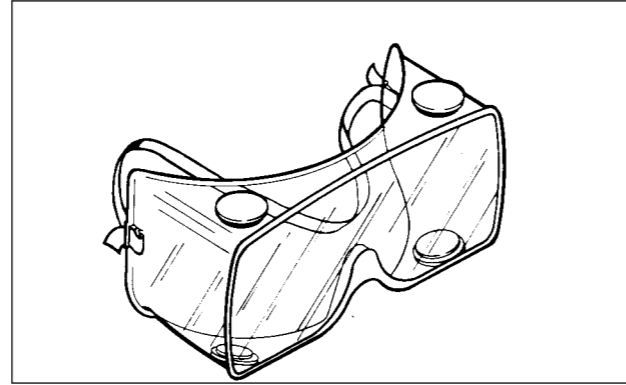
Air conditioning system refrigerant capacity 1.6 kg (3.5 lbs)

SPECIAL TOOLS



A22094

REFRIGERANT RECOVERY, RECYCLING AND RECHARGING STATION 380001326



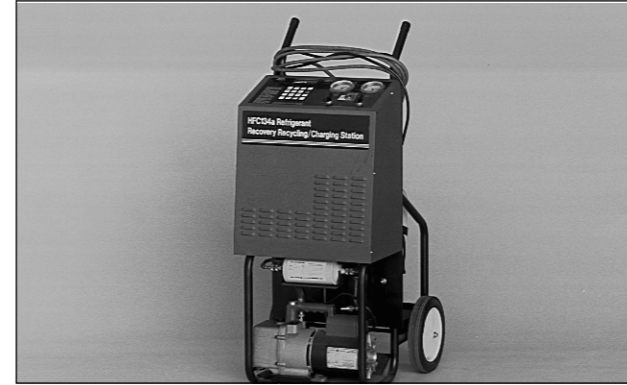
109L7

SAFETY GOGGLES CAS-10073-3

SPECIFICATIONS

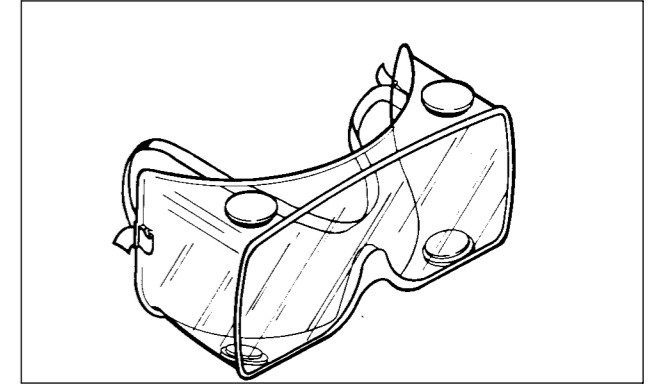
Air conditioning system refrigerant capacity 1.6 kg (3.5 lbs)

SPECIAL TOOLS



A22094

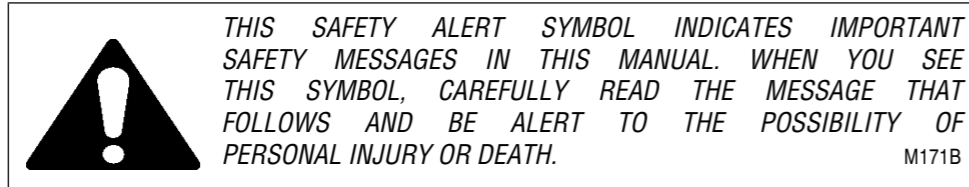
REFRIGERANT RECOVERY, RECYCLING AND RECHARGING STATION 380001326



109L7

SAFETY GOGGLES CAS-10073-3

SAFETY PROCEDURES



ATTENTION: Only authorized technicians certified by an approved training and certification organization may service or repair motor vehicle or mobile air conditioning systems. It is mandatory that all refrigerant must be RECOVERED and RECYCLED when removed from a system during servicing.

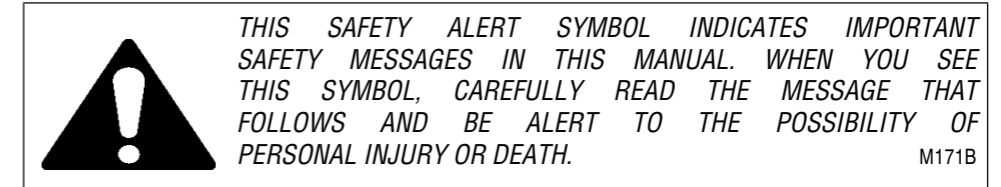
Refrigerant HFC-134a is the most stable, and easiest to work with of the refrigerants now used in air conditioner systems. Refrigerant HFC-134a does not contain any chlorofluorocarbons (CFC's) which are harmful to the earth's ozone layer.

Safety procedures must be followed when working with Refrigerant HFC-134a to prevent possible personal injury.

1. Always wear safety goggles when doing any service work near an air conditioner system. Liquid refrigerant getting into the eyes can cause serious injury. Do the following if you get refrigerant near or in your eyes:
 - A. Flush your eyes with water for 15 minutes.
 - B. See a physician immediately.
2. A drop of liquid refrigerant on your skin may cause frostbite. Open the fittings carefully and slowly when it is necessary to service the air conditioner system. Your skin must be treated for frostbite or a physician must be seen if you get refrigerant on your skin.

3. Keep refrigerant containers in the correct upright position. Always keep refrigerant containers away from heat and sunlight. The pressure in a container will increase with heat.
4. Always reclaim refrigerant from the system if you are going to weld or steam clean near the air conditioner system.
5. Always check the temperature and pressure of the air conditioner system before reclaiming refrigerant and when you test the system.
6. Dangerous gas can form when refrigerant comes in contact with an open flame. Never permit fumes to be inhaled.
7. Never leak test with compressed air or flame testers. Tests have indicated that compressed mixtures of HFC-134a and air can form a combustible gas.
8. Always reclaim refrigerant from the system before removing any air conditioning component.

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8. Always reclaim refrigerant from the system before removing any air conditioning component.

STEP 24

Pull the heater core and evaporator core from the lower box PPE.

STEP 25

Remove the expansion valve from the evaporator core.

STEP 26

Remove and discard the O-rings from the openings in the expansion valve.

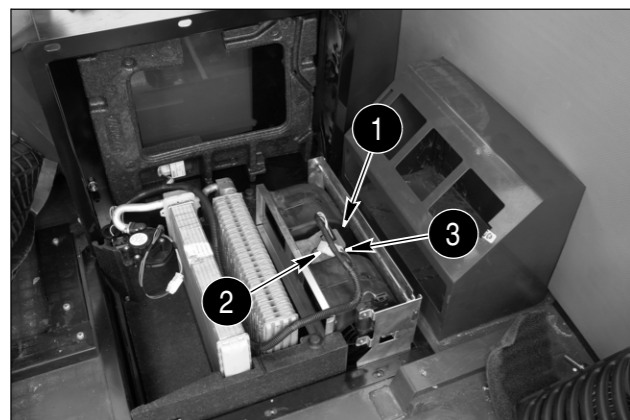
STEP 27

Remove the screws from the heater core and remove the control valve.

STEP 28

Remove and discard the O-rings from the heater control valve.

STEP 29



BD06G207

- 1. RESISTORS
- 2. RESISTOR CONNECTOR
- 3. BLOWER MOTOR CONNECTOR

Remove the fans from the lower PPE, disconnect the electrical connectors. Remove the two mounting screws for the resistor, remove the resistor.

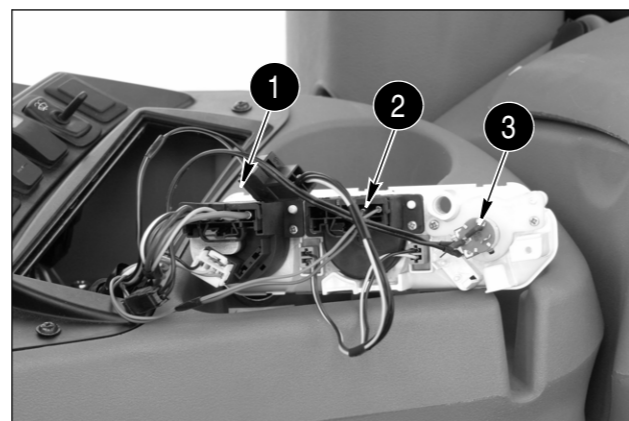
STEP 30



BD06G208

Disconnect the electrical connector for the recirculating vane motor, disconnect the linkage from the vane. Remove the mounting screws and remove the motor.

STEP 31



BD06G209

- 1. FAN SPEED AND A/C SWITCH
- 2. INSIDE/OUTSIDE AIR SELECTOR SWITCH
- 3. THERMOSTAT

Remove the switch panel from the console. Disconnect the electrical connectors and remove switches as required.

STEP 24

Pull the heater core and evaporator core from the lower box PPE.

STEP 25

Remove the expansion valve from the evaporator core.

STEP 26

Remove and discard the O-rings from the openings in the expansion valve.

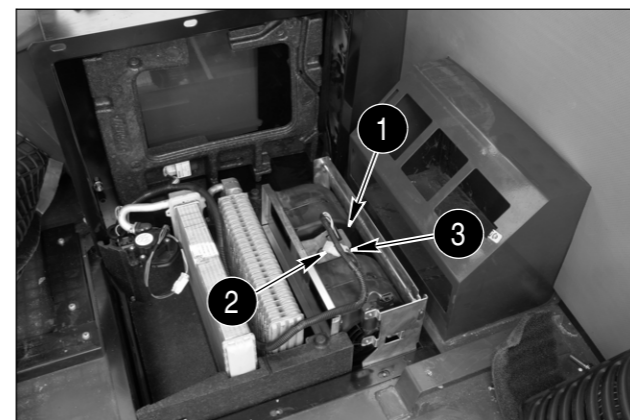
STEP 27

Remove the screws from the heater core and remove the control valve.

STEP 28

Remove and discard the O-rings from the heater control valve.

STEP 29

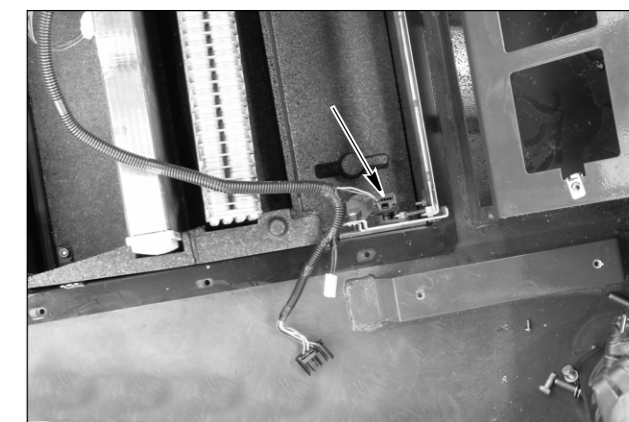


BD06G207

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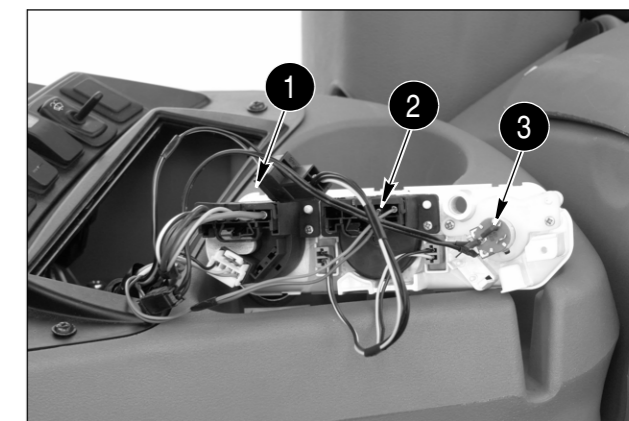
STEP 30



BD06G208

Disconnect the electrical connector for the recirculating vane motor, disconnect the linkage from the vane. Remove the mounting screws and remove the motor.

STEP 31



BD06G209

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Section 9006

LOADER

9006

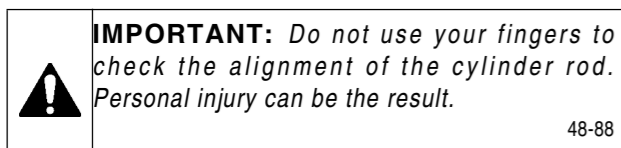
Section 9006

LOADER

9006

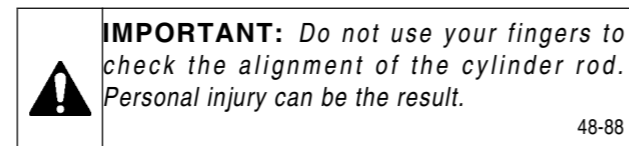
INSTALLING THE LOADER FRAME

1. Apply antiseize compound to the inner bores and outer bores for the pivot pins of the front frame, refer to the illustration on page 10.
2. Move the machine into alignment with the loader frame (2).
3. Lower the loader frame (2) into alignment with the front frame.
4. Apply antiseize compound to the pivot pins (9 and 10) that fasten the loader frame (2) to the front frame.
5. Start the pivot pins (9 and 10) into the front frame. Install the washers (18) and new wipers (22) between the loader frame (2) and the front frame.
6. Install the pivot pins (9 and 10) all the way.
7. Install the bolt (19), washer (20) and spacer (21) that fasten the pivot pins (9 and 10). Tighten the bolt.
8. Install the proximity switch and cover. Left-hand side of the machine only.
9. Disconnect the chain hoist from the loader frame (2).
10. If the machine is equipped with front lamps, hold the front lamps in place and install the cap screws and lock washers that fasten the front lamps to the front frame. Tighten the cap screws.
11. If the machine is equipped with auxiliary hydraulics, remove the plugs from the tube fittings and the caps from the hoses. Connect the hoses to the tubes.
12. Connect the chain hoist to the bucket cylinder (8) and lower the bucket cylinder (8).
13. Start the engine and run the engine at low idle.
14. Have another person help you at this time. Move the bucket control lever as required to align the piston rod eye of the bucket cylinder (8) with the bellcrank (11). Stop the engine.



15. Install the pivot pin (7) in the bellcrank (11) and the piston rod eye of the bucket cylinder (8).
16. Install the bolt (15), washer (16), and spacer (17) that fasten the pivot pin (7). Tighten the bolt.

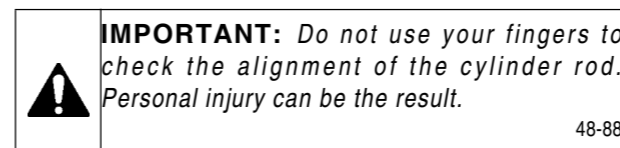
17. Disconnect the chain hoist from the bucket cylinder (8).
18. Fasten the chain hoist to one of the lift cylinders.
19. Raise the piston rod yoke of the lift cylinder so the piston rod yoke is aligned with the loader frame (2).
20. Install a driver in the piston rod yoke and the loader frame (2).
21. Repeat Steps 18, 19, and 20 for the other lift cylinder.
22. Disconnect the chain hoist from the lift cylinder.
23. Start the engine. Raise the loader frame and roll the bucket all the way forward. Lower the bucket to the floor. Stop the engine.
24. Fasten the chain hoist to the crossmember (1) of the loader frame (2).
25. Start the engine and run the engine at low idle.
26. Have another person help you at this time. Move the lift control lever as required to align the piston rod yoke of one of the lift cylinders with the loader frame (2).



27. Remove the driver and install the pivot pin (3).
28. Install the bolt (12), washer (13), and spacer(14) that fasten the pivot pin (3). Tighten the bolt.
29. Repeat Steps 26, 27, and 28 for the other lift cylinder. Stop the engine.
30. Lubricate the pivot pins with molydisulfide grease.
31. Disconnect the chain hoist from the crossmember (1) of the loader frame (2).
32. Tighten the filler plug in the reservoir.
33. If the machine is equipped with auxiliary hydraulics, start the engine and run the engine at low idle.
34. Slowly extend and retract the clam cylinders four times to remove air from the auxiliary circuit.
35. Stop the engine, check the level of the oil in the reservoir, and check for leaks. Add oil to the reservoir as required.

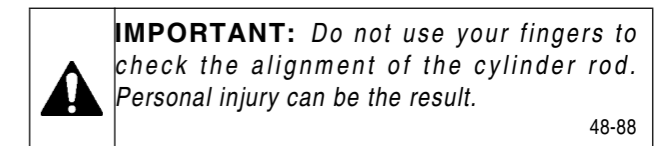
INSTALLING THE LOADER FRAME

1. Apply antiseize compound to the inner bores and outer bores for the pivot pins of the front frame, refer to the illustration on page 10.
2. Move the machine into alignment with the loader frame (2).
3. Lower the loader frame (2) into alignment with the front frame.
4. Apply antiseize compound to the pivot pins (9 and 10) that fasten the loader frame (2) to the front frame.
5. Start the pivot pins (9 and 10) into the front frame. Install the washers (18) and new wipers (22) between the loader frame (2) and the front frame.
6. Install the pivot pins (9 and 10) all the way.
7. Install the bolt (19), washer (20) and spacer (21) that fasten the pivot pins (9 and 10). Tighten the bolt.
8. Install the proximity switch and cover. Left-hand side of the machine only.
9. Disconnect the chain hoist from the loader frame (2).
10. If the machine is equipped with front lamps, hold the front lamps in place and install the cap screws and lock washers that fasten the front lamps to the front frame. Tighten the cap screws.
11. If the machine is equipped with auxiliary hydraulics, remove the plugs from the tube fittings and the caps from the hoses. Connect the hoses to the tubes.
12. Connect the chain hoist to the bucket cylinder (8) and lower the bucket cylinder (8).
13. Start the engine and run the engine at low idle.
14. Have another person help you at this time. Move the bucket control lever as required to align the piston rod eye of the bucket cylinder (8) with the bellcrank (11). Stop the engine.



15. Install the pivot pin (7) in the bellcrank (11) and the piston rod eye of the bucket cylinder (8).
16. Install the bolt (15), washer (16), and spacer (17) that fasten the pivot pin (7). Tighten the bolt.

17. Disconnect the chain hoist from the bucket cylinder (8).
18. Fasten the chain hoist to one of the lift cylinders.
19. Raise the piston rod yoke of the lift cylinder so the piston rod yoke is aligned with the loader frame (2).
20. Install a driver in the piston rod yoke and the loader frame (2).
21. Repeat Steps 18, 19, and 20 for the other lift cylinder.
22. Disconnect the chain hoist from the lift cylinder.
23. Start the engine. Raise the loader frame and roll the bucket all the way forward. Lower the bucket to the floor. Stop the engine.
24. Fasten the chain hoist to the crossmember (1) of the loader frame (2).
25. Start the engine and run the engine at low idle.
26. Have another person help you at this time. Move the lift control lever as required to align the piston rod yoke of one of the lift cylinders with the loader frame (2).



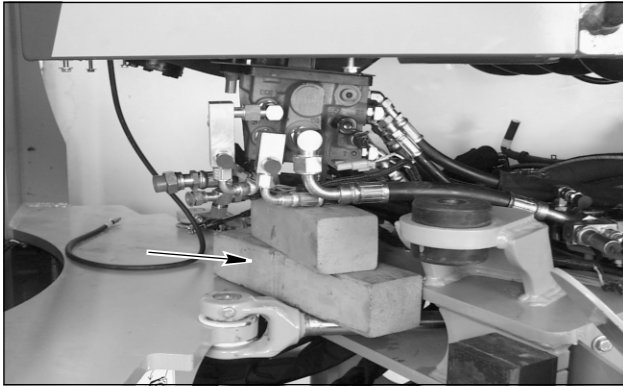
27. Remove the driver and install the pivot pin (3).
28. Install the bolt (12), washer (13), and spacer(14) that fasten the pivot pin (3). Tighten the bolt.
29. Repeat Steps 26, 27, and 28 for the other lift cylinder. Stop the engine.
30. Lubricate the pivot pins with molydisulfide grease.
31. Disconnect the chain hoist from the crossmember (1) of the loader frame (2).
32. Tighten the filler plug in the reservoir.
33. If the machine is equipped with auxiliary hydraulics, start the engine and run the engine at low idle.
34. Slowly extend and retract the clam cylinders four times to remove air from the auxiliary circuit.
35. Stop the engine, check the level of the oil in the reservoir, and check for leaks. Add oil to the reservoir as required.

Installation

STEP 24

Check rubber mounts (3 and 4) for deterioration, tears, deformation, or other damage; replace rubber mounts as necessary.

STEP 25



BD01D388

Position cab over rear chassis then put wood blocks under brake valve. Slowly lower cab onto rear chassis making sure that brake valve is positioned so that brake pedal enters into cab. Remove wood blocks as cab is lowered onto brake valve.

STEP 26

Install washers, bolts, and nuts to secure cab to rear chassis. Tighten bolts to a torque of 773 to 854 Nm (570 to 630 pound feet)

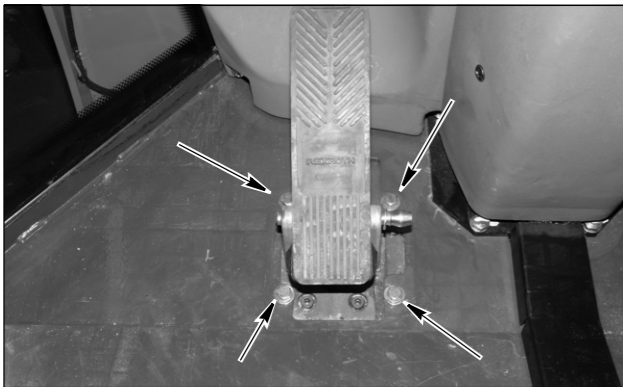
STEP 27

Disconnect lifting equipment from cab.

STEP 28

Remove lifting eyes.

STEP 29



BD06G185

Align mounting holes in brake valve with associated holes in cab or canopy floor. Install hardware to secure brake valve to floor.

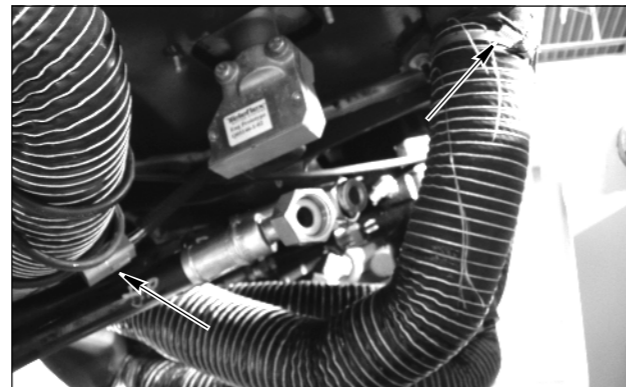
STEP 30



BD06G188

Position floor mat.

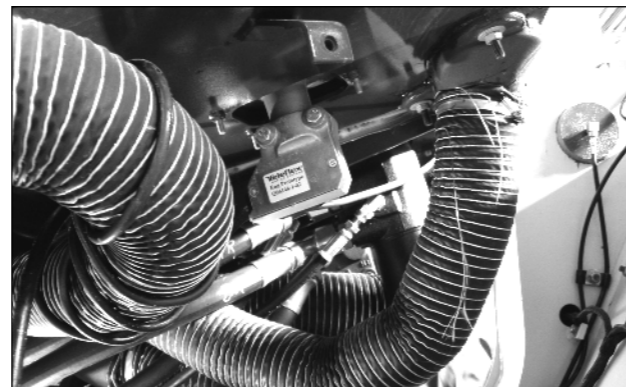
STEP 31



W270-8R009

Connect throttle connector and mount air duct.

STEP 32



W270-8R003

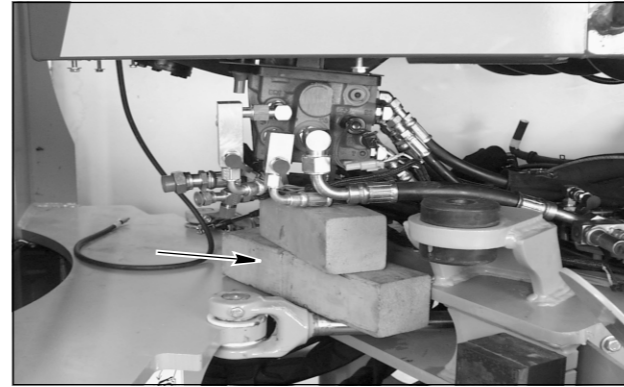
Remove plugs from hoses and caps from fittings. Connect hoses to steering control valve following tags installed during removal. Remove and discard tags.

Installation

STEP 24

Check rubber mounts (3 and 4) for deterioration, tears, deformation, or other damage; replace rubber mounts as necessary.

STEP 25



BD01D388

Position cab over rear chassis then put wood blocks under brake valve. Slowly lower cab onto rear chassis making sure that brake valve is positioned so that brake pedal enters into cab. Remove wood blocks as cab is lowered onto brake valve.

STEP 26

Install washers, bolts, and nuts to secure cab to rear chassis. Tighten bolts to a torque of 773 to 854 Nm (570 to 630 pound feet)

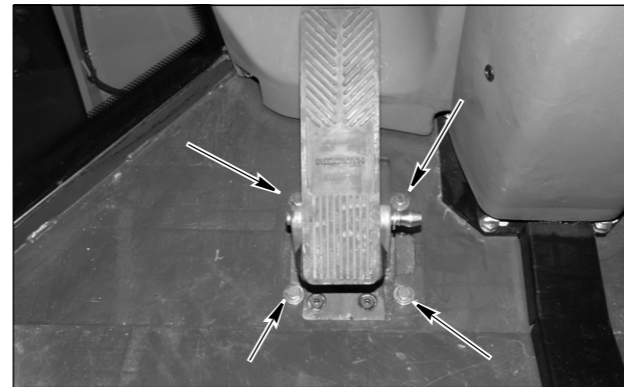
STEP 27

Disconnect lifting equipment from cab.

STEP 28

Remove lifting eyes.

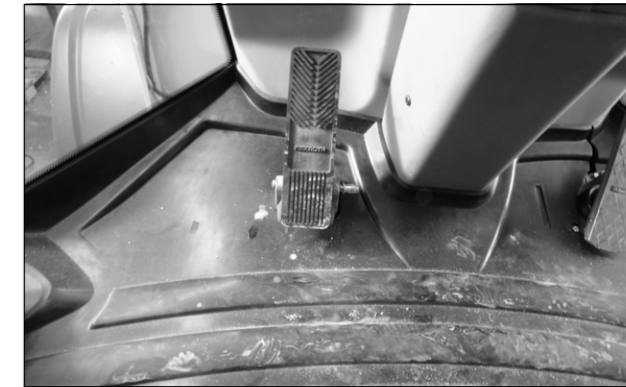
STEP 29



BD06G185

Align mounting holes in brake valve with associated holes in cab or canopy floor. Install hardware to secure brake valve to floor.

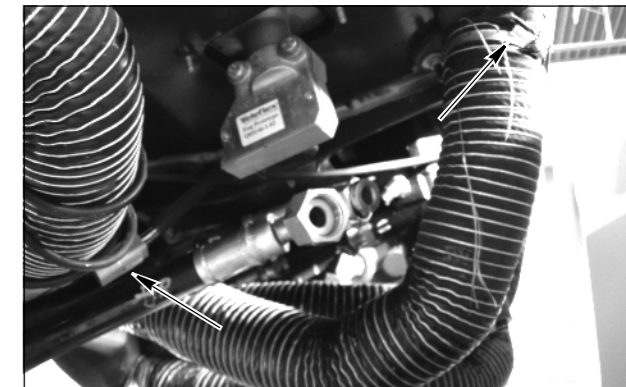
STEP 30



BD06G188

Position floor mat.

STEP 31



W270-8R009

Connect throttle connector and mount air duct.

STEP 32



W270-8R003

Remove plugs from hoses and caps from fittings. Connect hoses to steering control valve following tags installed during removal. Remove and discard tags.

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