CEBMG65194

SHOP MANUAL

KOMATSU®

GD530A, AW SERIES
GD650A, AW SERIES
GD670A, AW SERIES

MACHINE MODEL	SERIAL NUMBER
GD530A-1	200840 THRU 202000
GD530A-1E	201404
GD530A-2A	202002 & Up
GD530A-2B	202002 & Up
GD530A-2E	202002 & Up
GD530A-2C	
GD530AW-1	200840 THRU 202000
GD530AW-2A	202002 & Up
GD530AW-2B	202002 & Up
GD530AW-2E	202002 & Up
GD530AW-2C	
GD650A-1	200840 THRU 202000
GD650A-2	202001
GD650A-2A	202002 & Up
GD650A-2B	202002 & Up
GD650A-2E	202002 & Up

MACHINE MODEL	SERIAL NUMBER
GD650A-2C	
GD650AW-1	200840 THRU 202000
GD650AW-2A	202002 & Up
GD650AW-2B	202002 & Up
GD650AW-2E	202002 & Up
GD650AW-2C	
GD670A-1	200840 THRU 202000
GD670A-2A	202002 & Up
GD670A-2B	202002 & Up
GD670A-2E	202002 & Up
GD-670A-2C	
GD670AW-1	200840 THRU 202000
GD670AW-2A	202002 & Up
GD670AW-2B	202002 & Up
GD670AW-2E	202002 & Up
GD-670AW-2C	

This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require. Material and specifications are subject to change without notice.

GD530A, AW Series mount the KDC610T / S6D102-1 / S6D102E-1 engine.
GD650A, AW Series mount the KDC614T / S6D114-1 / S6D114E-1 engine.
GD670A, AW Series mount the KDC614T / S6D114-1 / S6D114E-1 engine.

For details of the engines, see the appropriate engine manual sets.
APR 96

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Service Manual | Publication CEBMG65194
Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

CONTENTS	PAGE
INTRODUCTION	2
SERVICING	3
REMOVAL	3
DISASSEMBLY	8
CLEANING AND INSPECTION	10
REASSEMBLY	12
INSTALLATION	15

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Serv... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

CONTENTS	PAGE
SPECIAL TOOLS	2
CHANNEL SUPPORT TOOL	2
CLUTCH PACK REMOVAL TOOL	3
CLUTCH SPRING COMPRESSION TOOL	4
INTRODUCTION	5
OPERATION	5
RULES OF OPERATION	5
SERVICE	7
GENERAL LOCATION OF COMPONENTS	9
VOLTAGE AND ELECTRICAL POWER REQUIREMENTS	10
PRESSURE AND FLOW CHECKS	11
TRANSMISSION SCHEMATICS	13
TROUBLESHOOTING	14
FLYWHEEL DIMENSIONAL CHECKS	20
CONVERTER ASSEMBLY INSTALLATION INTO TRANSMISSION IF SEPARATED FROM TRANSMISSION	23
SERVICING	24
REMOVAL	24
TRANSMISSION	34
Disassembly	34
Transmission/Torque Converter Disassembly (34); Front Cover Disassembly (36); Main Case Disassembly (38); Torque Converter Disassembly (S/N 200417 Thru 202050) (42); Torque Converter Disassembly (S/N 202051 and Up) (44); Clutch Pack 1 and 5 Disassembly (First Stage) (46); Clutch Pack 2 and 6 Disassembly (Second Stage) (49); Clutch Pack 3 and 4 Disassembly (Third Stage) (52); Control Valve Disassembly (56)	
Cleaning and Inspection	58
Reassembly	60
Front Cover Reassembly (60); Torque Converter Reassembly (S/N 200417 Thru 202050) (64), Torque Converter Reassembly (S/N 202051 and Up) (66); Clutch Pack 1 and 5 Reassembly (First Stage) (66); Clutch Pack 2 and 6 Reassembly (Second Stage) (73); Clutch Pack 3 and 4 Reassembly (Third Stage) (76); Control Valve Reassembly (84); Main Case Reassembly (86); Transmission/Torque Converter Reassembly (90)	
TRANSFER CASE	92
Disassembly	92
Cleaning and Inspection	93
Reassembly	94
INSTALLATION	97
SERVICING MACHINE AFTERTRANSMISSION OVERHAUL	108
STARTUP PROCEDURE	109

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Servi... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

CONTENTS	PAGE
INTRODUCTION	2
INTERPRETATION OF TYPE CODES	7
DIAGNOSTIC PORTS	8
TROUBLESHOOTING	10
SERVICING	13
REMOVAL	13
CHARGE PUMP (IN WARRANTY SERVICE)	15
Disassembly	15
Reassembly	16
SHAFT SEAL (IN WARRANTY SERVICE)	17
Disassembly	17
Reassembly	18
MAIN PUMP DISASSEMBLY (OUT OF WARRANTY SERVICE)	19
CLEANING AND INSPECTION	27
MAIN PUMP REASSEMBLY (OUT OF WARRANTY SERVICE)	29
INSTALLATION	38
TESTS AND ADJUSTMENTS	40

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Serv... Order the manual at mid-west-tech.com >

TROUBLESHOOTING

NOTE: *For detailed hydraulic troubleshooting refer to "Troubleshooting and Adjustment Manual" shop manual section for your unit.*

PROBLEM	POSSIBLE CAUSE	CORRECTION
Noisy pump caused by cavitation.	Oil too heavy.	Change to proper viscosity.
	Suction strainer or filter plugged.	Clean and replace.
	Suction line plugged or collapsing.	Clean line or replace.
Noisy pump caused by aeration.	Oil supply low.	Fill reservoir.
	Air leaking into suction line.	Tighten fittings.
	Foaming oil.	Drain reservoir and fill with non-foaming type oil.
Hydraulic system overheating.	Oil supply low.	Fill reservoir.
	Oil in system too light.	Drain reservoir and refill with proper viscosity oil.
	Excessive internal leakage.	Disconnect case drain line, measure leakage volume while pressurizing hydraulic system. Case drain flow should not exceed 6.0 GPM (27.2 lpm). If excessive, remove pump, disassemble and repair.
	Aeration of oil.	Tighten fittings.

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Servi... Order the manual at mid-west-tech.com >

SPECIAL TOOLS

The pinout test box (1, Figure 1), cover plate (2) and wiring harness (3) shown here are used to test the AWD controller. The harness is designed to connect between existing connectors coming from the AWD controller. This will permit electrical readings to be taken while the system is functioning. The cover plate is designed to fit onto the pinout test box and correlate the wires in the system to the pinout test box.

Since the advent of more sophisticated electrical systems, the pinout test box itself will be used in the future with other electrical systems for test purposes. The pinout test box is already used on other KDC machines.

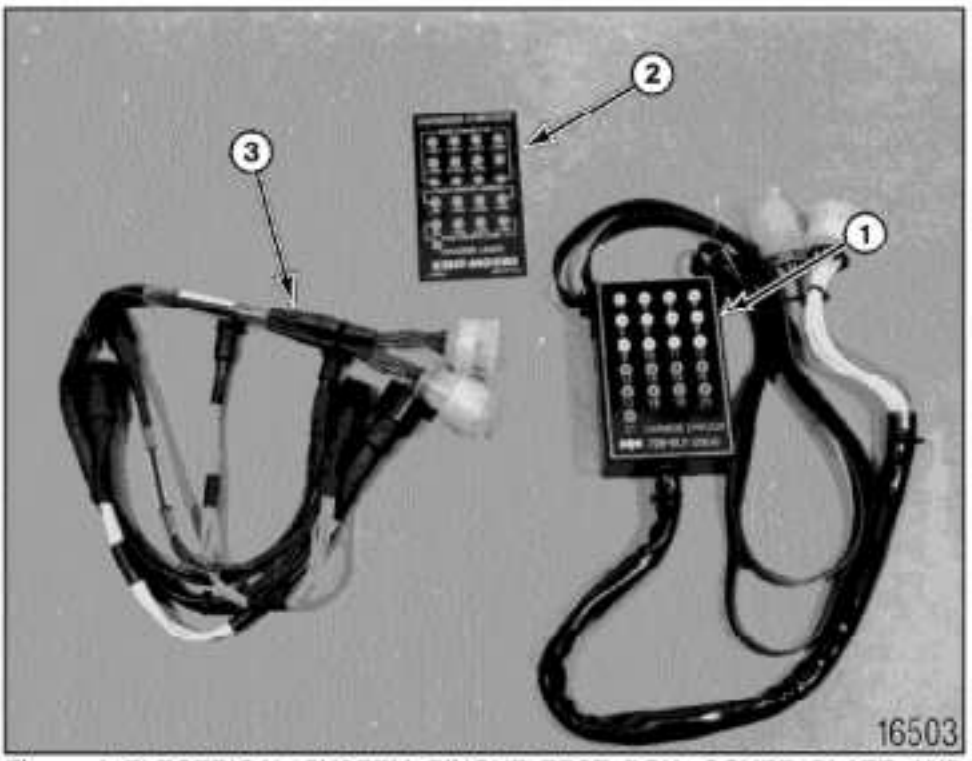


Figure 1 ELECTRICAL SYSTEM PINOUT TEST BOX, COVER PLATE AND WIRING HARNESS

Figure 2, shows the pinout test box, cover plate and wiring harness being used to test the AWD controller.

Order the tools using the following P/N's;

799-601-2600 Harness Checker (Pinout Test Box)

J38622 Adaptor Cable and Cover Plate

Orders for these tools should be placed with;
Kent-Moore Heavy Duty Group
SPX Corporation
29784 Little Mack
Roseville, MI 48066-2298

Telephone; 1-800-328-6657 USA and Canada

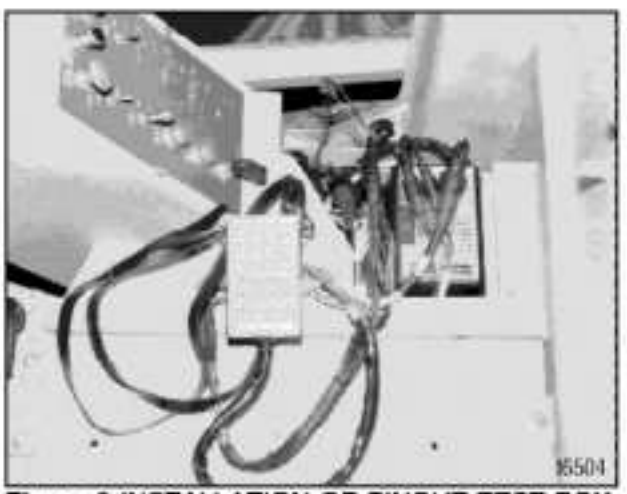


Figure 2 INSTALLATION OF PINOUT TEST BOX, COVER PLATE AND WIRING HARNESS FOR AWD CONTROLLER

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Serv... Order the manual at mid-west-tech.com >

PINION GEAR ENDPLAY ADJUSTMENT

1. Install bearing cone (17, Figure 109), yoke (13), special washer (8), and castle nut (7) on pinion gear (10). While rotating pinion gear (10), tighten castle nut to 445 lbf ft (61.5 kg•m). This will ensure that all bearing components are properly seated.

   NOTE: *O-ring (9, Figure 109) and seals (15 and 16) are not installed until after proper pinion gear endplay is determined.*

2. Remove castle nut (7, Figure 109), special washer (8), and yoke (13) from pinion gear (10). Press pinion gear out of bearing cone (17).

3. Install same amount of pinion endplay shims (20, Figure 109) removed at disassembly, washer (19), bearing cone (17), yoke (13), special washer (8) and castle nut (7). Again tighten castle nut to 445 lbf ft (61.5 kg•m), then loosen it to below 200 lbf ft (27.7 kg•m), and then tighten it from 225 - 300 lbf ft (31.1 - 41.5 kg•m).

4. Turn pinion gear (10, Figure 109) using a force of 2 - 4 lbf ft (0.3 - 0.6 kg•m). Then check endplay. Using a dial indicator apply 23 - 68 Lbs. (10.4 - 30.8 kg) of force to pinion gear. Endplay reading must be 0.000 - 0.003 in. (0.000 - 0.076 mm). Adjust pinion endplay shims (20), as necessary to obtain proper endplay. When proper bearing setting is reached, tighten castle nut so cotter pin (6) can be installed. Use a different special washer (8) if necessary to meet torque of 225 - 300 lbf ft (31.1 - 41.5 kg•m).

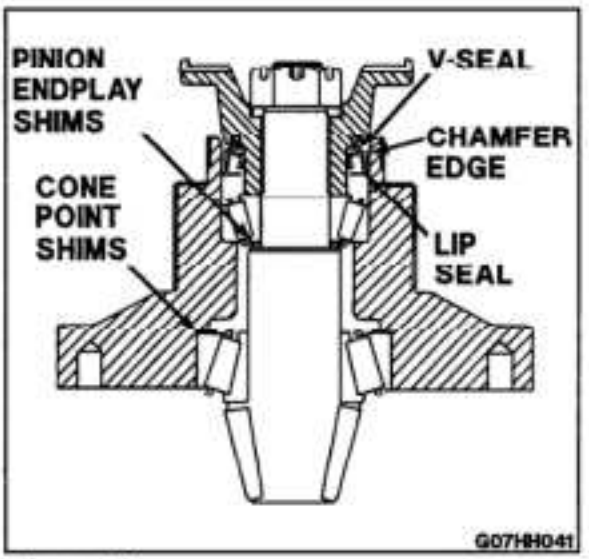


Figure 113

   NOTE: *Each time castle nut and components are removed to adjust pinion endplay shim pack for proper endplay, tighten castle nut to 445 lbf ft (61.5 kg•m), then loosen it to below 200 lbf ft (27.7 kg•m), and then tighten it from 225 - 300 lbf ft (31.1 - 41.5 kg•m).*

5. With proper endplay established, match mark position of castle nut (7, Figure 109) in relationship to yoke (13) and pinion gear (10).

PINION GEAR INPUT QUILL INSTALLATION AND BACKLASH ADJUSTMENT

1. Coat both sides of approximately six ring gear teeth with "Prussian Blue" or "Never-Seize" compound. Do this at three locations 120° away from each other. This must be done so rolling pattern can be check.

2. Install new alignment dowels (9, Figure 3) in differential case (1, Figure 114), if replacement was necessary.

3. Secure input quill assembly (2, Figure 114) to case (1) with fourteen flat washers and bolts (3). Tighten bolts to 229 lbf ft (31.7 kg•m). DO NOT APPLY SEALANT AT THIS TIME.

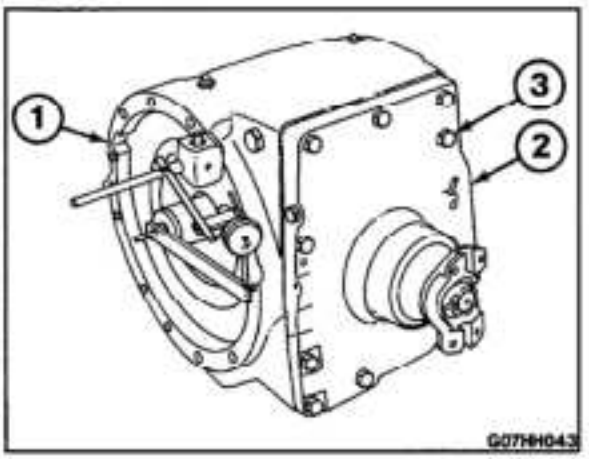
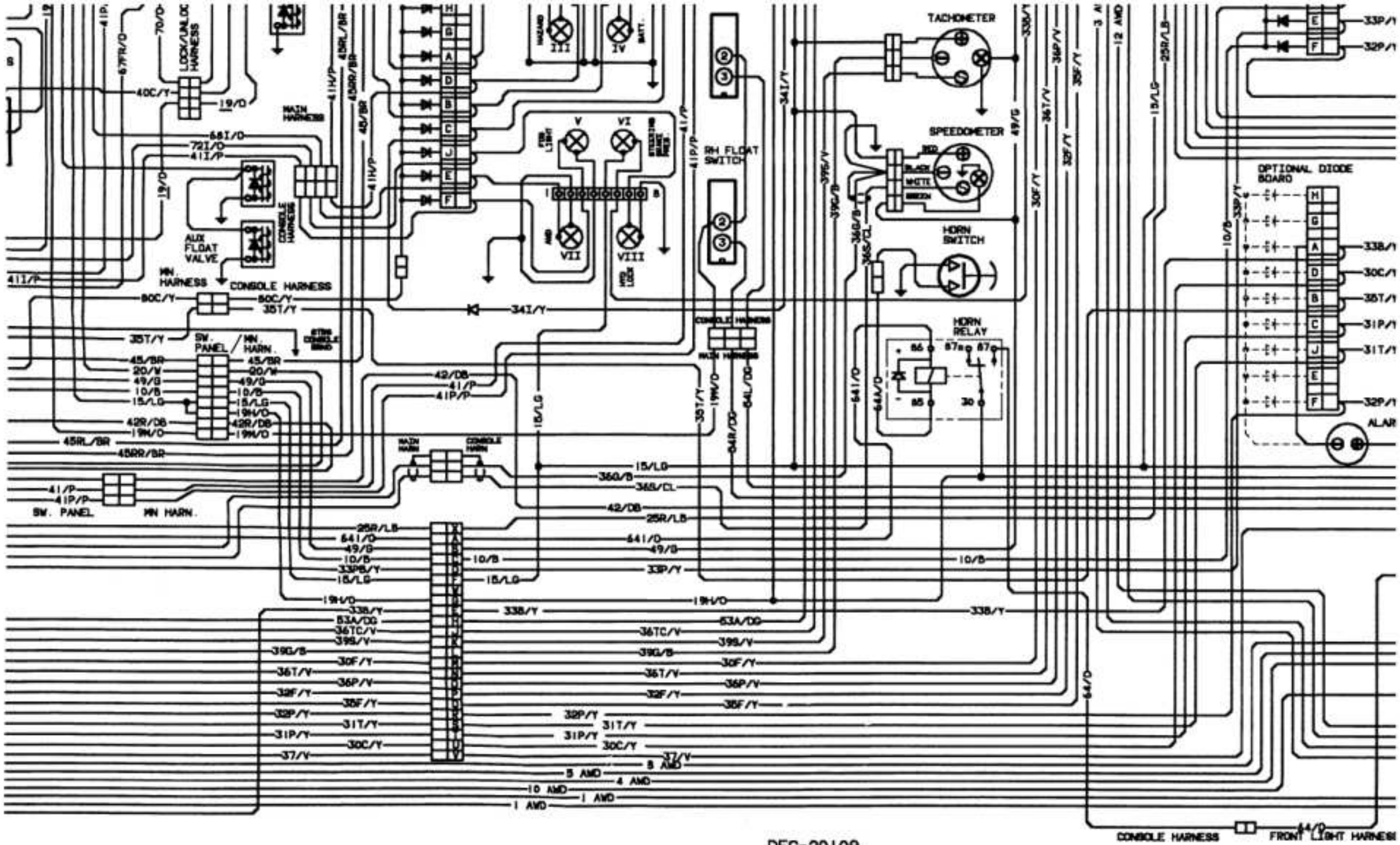


Figure 114

MidWestTech | Komatsu GD530A AW, GD650A AW, GD670A AW Series Motor Grader Servi... Order the manual at mid-west-tech.com >



Order the manual at mid-west-tech.com >