

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	4605JC
23106	FUNCTION PROBLEM – TOWER LIFT DOWN PERMANENTLY SELECTED	Machine is in Ground Mode; The Tower Lift Down switch input = High at Startup	The Tower Lift Down switch input = Low; Tower Lift Up and Down permitted after controls are initialized		
23107	FUNCTION PROBLEM - LIFT UP PERMANENTLY SELECTED	Machine is in Ground Mode; The Lift Up switch input = High at Startup	The Lift Up switch input = Low; Lift Up and Down permitted after controls are initialized	X	X
23108	FUNCTION PROBLEM - LIFT DOWN PERMANENTLY SELECTED	Machine is in Ground Mode; The Lift Down switch input = High at Startup	The Lift Down switch input = Low; Lift Up and Down permitted after controls are initialized	X	X
23109	FUNCTION PROBLEM - TELESCOPE IN PERMANENTLY SELECTED	Machine is in Ground Mode; The Telescope In switch input = High at Startup	The Telescope In switch input = Low; Telescope In and Out permitted after controls are initialized	X	X
23110	FUNCTION PROBLEM - TELESCOPE OUT PERMANENTLY SELECTED	Machine is in Ground Mode; The Telescope Out switch input = High at Startup	The Telescope Out switch input = Low; Telescope In and Out permitted after controls are initialized	X	X
23111	FUNCTION PROBLEM - PLATFORM LEVEL UP PERMANENTLY SELECTED	Machine is in Ground Mode; The Platform Level Up switch input = High at Startup	The Platform Level Up switch input = Low; Platform Level Up and Down permitted after controls are initialized	X	X
23112	FUNCTION PROBLEM - PLATFORM LEVEL DOWN PERMANENTLY SELECTED	Machine is in Ground Mode; The Platform Level Down switch input = High at Startup	The Platform Level Down switch input = Low; Platform Level Up and Down permitted after controls are initialized	X	X
23113	FUNCTION PROBLEM - PLATFORM ROTATE LEFT PERMANENTLY SELECTED	Machine is in Ground Mode; The Platform Rotate Left switch input = High at Startup	The Platform Rotate Left switch input = Low; Platform Rotate Left and Right permitted after controls are initialized	X	X
23114	FUNCTION PROBLEM - PLATFORM ROTATE RIGHT PERMANENTLY SELECTED	Machine is in Ground Mode; The Platform Rotate Right switch input = High at Startup	The Platform Rotate Right switch input = Low; Platform Rotate Left and Right permitted after controls are initialized	X	X
23154	TELESCOPE RETRACT SWITCHES - DISAGREEMENT	The UGM detects the following conditions: Telescope Retracted Switch #1 and Telescope Retracted Switch #2 readings disagree for longer than 5 seconds; Telescope In or Telescope Out output value \geq Creep output value	Power Cycled	X	X
23155	SWING SWITCHES - DISAGREEMENT	The UGM detects the following conditions: Swing Switch #1 and Swing Switch #2 readings disagree for longer than 5 seconds; Swing Left or Swing Right value \geq Creep output value	Power Cycled		
23163	FUNCTION PROBLEM – MSSO PERMANENTLY SELECTED	The MSSO switch input = Low at Startup	Power Cycled	X	X
23170	BOOM ANGLE SENSOR - SINGLE POINT CALIBRATION PERFORMED	Single point Boom Angle calibration is successfully completed	Fault shall be retentive through Power Cycled; Can be reset if CALIBRATIONS → BOOM ANGLE is successfully completed	X	X

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23173	CAPACITY LENGTH SWITCHES - DISAGREEMENT	Dual Capacity is configured; The UGM detects the following conditions: Capacity Length Switch #1 and Capacity Length Switch #2 readings disagree for longer than 5 seconds; Telescope In or Telescope Out output value \geq Creep output value	Power Cycled	X	X
23193	TELESCOPE CUTBACK SWITCH - NOT RESPONDING	Telescope Cutback is configured; The UGM detects the following conditions: Telescope Cutback Switch input = Low for longer than 10 seconds; Telescope In or Telescope Out output value \geq Creep output value	Power Cycled		
241	AMBIENT TEMPERATURE SENSOR – OUT OF RANGE LOW	MACHINE SETUP \rightarrow TEMP CUTOUT = YES; Ambient Temperature sensor reading \leq - 50C; Do not report if DTC 6657 is active	Ambient Temperature sensor reading $>$ - 50C; Full Speed permitted after controls are initialized	X	X
242	AMBIENT TEMPERATURE SENSOR – OUT OF RANGE HIGH	MACHINE SETUP \rightarrow TEMP CUTOUT = YES; Ambient Temperature sensor reading \geq 85C; Do not report if DTC 6657 is active	Ambient Temperature sensor reading $<$ 85C; Full Speed permitted after controls are initialized	X	X
259	MODEL CHANGED – HYDRAULICS SUSPENDED – CYCLE EMS	The MACHINE SETUP \rightarrow MODEL NUMBER is changed using the analyzer	Power Cycled	X	X
2513	GENERATOR MOTION CUTOUT ACTIVE	MACHINE SETUP \rightarrow GEN SET = BELT DRIVE; MACHINE SETUP \rightarrow GEN SET CUTOUT = MOTION CUTOUT; The platform Generator Switch is engaged Footswitch State = Depressed The machine is in Platform mode	Not all of the trigger conditions are met	X	X
2514	BOOM PREVENTED – DRIVE SELECTED	MACHINE SETUP \rightarrow FUNCTION CUTOUT = BOOM CUTOUT; Drive or Steer is already engaged; The boom is Above Elevation The operator is attempting to activate one of the boom functions DTC 2514 supercedes DTC 2518 if drive/steer and boom functions are both active when machine transitions from Below Elevation to Above Elevation.	Not all of the trigger conditions are met	X	X
2516	DRIVE PREVENTED – ABOVE ELEVATION	MACHINE SETUP \rightarrow FUNCTION CUTOUT = DRIVE CUTOUT The boom is Above Elevation The operator is attempting to activate Drive or Steer	Not all of the trigger conditions are met	X	X
2517	DRIVE PREVENTED – TILTED & ABOVE ELEVATION	MACHINE SETUP \rightarrow FUNCTION CUTOUT = DRIVE CUT E&T The boom is Above Elevation The chassis is considered Tilted The operator is attempting to activate Drive or Steer	Not all of the trigger conditions are met	X	X
2518	DRIVE PREVENTED – BOOM SELECTED	MACHINE SETUP \rightarrow FUNCTION CUTOUT = BOOM CUTOUT The boom is Above Elevation Any boom function is already active The operator attempts to activate Drive or Steer	Not all of the trigger conditions are met	X	X

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2519	DRIVE PREVENTED - TILTED & EXTENDED OR HIGH ANGLE	Chassis Tilt is > 1.8 degrees and either the boom is above 55 degrees main boom angle and/or the boom is telescoped out beyond the drive disable switches. (Dual Cap Prox.)	Boom lifted below 55 degrees and/or the boom retracted to inside the drive disable length switches. (Dual Cap)	X	X
2548	SYSTEM TEST MODE ACTIVE	UGM determines that System Test Mode is active	Power Cycle	X	X
2549	DRIVE & BOOM PREVENTED - SOFT TOUCH ACTIVE	MACHINE SETUP → SOFT TOUCH = YES; Machine is in Platform Mode; Soft Touch State = Enabled	Not all of the trigger conditions are met	X	X
2563	SKYGUARD SWITCH – DISAGREEMENT	MACHINE SETUP → SKYGUARD = YES; Machine is in Platform Mode; [(SkyGuard input #1 Platform Module J7-18) ≠ (SkyGuard input #2 Platform Module J1-23)] > 160ms	[(SkyGuard inputs (Platform Module J7- 18 = High) and (Platform Module J1-23 = High)) and (Footswitch State = Not Depressed)]	X	X
2564	DRIVE PREVENTED - LEFT BRAKE NOT RELEASING			X	X
2568	TEMPERATURE CUTOUT ACTIVE – AMBIENT TEMPERATURE TOO LOW	Low Temperature Cutout = Active	Low Temperature Cutout = Inactive; Full Speed permitted after controls are initialized	X	X
2576	PLATFORM LEVEL PREVENTED – ABOVE ELEVATION	Platform Level Override Cutout = Enabled; The Platform Level Up or Down switch input = High; Footswitch is active	Controls initialized	X	X
331	BRAKE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
332	BRAKE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
334	LIFT UP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Lift Up and Down permitted after controls are initialized	X	X
336	LIFT DOWN VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Lift Up and Lift Down permitted after controls are initialized	X	X
3311	GROUND ALARM – SHORT TO BATTERY	MACHINE SETUP → ALARM / HORN = SEPARATE; The UGM detects a short to battery on J2-2	Power Cycled	X	X
3358	MAIN DUMP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3359	MAIN DUMP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
3360	MAIN DUMP VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
3361	BRAKE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X

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3362	START SOLENOID – SHORT TO GROUND	UGM detects a short to ground at this output	Power Cycled	X	X
3363	START SOLENOID – OPEN CIRCUIT	UGM detects an open circuit at this output; if MACHINE SETUP → ENGINE, only evaluate until first Start is attempted for each power cycle due to possibility of ECU opening ground solenoid return path to disable Start and causing erroneous diagnostics.	Power Cycled	X	X
3364	START SOLENOID – SHORT TO BATTERY	UGM detects a short to battery at this output	Power Cycled	X	X
3365	STEER DUMP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
3366	STEER DUMP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
3367	STEER DUMP VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
3368	TWO SPEED VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3369	TWO SPEED VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
3370	TWO SPEED VALVE - SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
3371	GROUND ALARM – SHORT TO GROUND	MACHINE SETUP → ALARM / HORN = SEPARATE; The UGM detects a short to ground on J2-2	Power Cycled	X	X
3372	GROUND ALARM – OPEN CIRCUIT	MACHINE SETUP → ALARM / HORN = SEPARATE; The UGM detects an open circuit on J2-2	Power Cycled	X	X
3373	GEN SET/WELDER – SHORT TO GROUND	MACHINE SETUP → GEN SET = BELT DRIVE and the UGM detects a short to ground at this output	Power Cycled	X	X
3374	GEN SET/WELDER – OPEN CIRCUIT	MACHINE SETUP → GEN SET = BELT DRIVE and the UGM detect an open circuit at this output	Power Cycled	X	X
3375	GEN SET/WELDER – SHORT TO BATTERY	MACHINE SETUP → GEN SET = BELT DRIVE and the UGM detects a short to battery at this output	Power Cycled	X	X
3376	HEAD TAIL LIGHT – SHORT TO GROUND	MACHINE SETUP → H & T LIGHTS = YES and the UGM detects a short to ground at this output	Power Cycled	X	X

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3377	HEAD TAIL LIGHT – OPEN CIRCUIT	MACHINE SETUP → H & T LIGHTS =YES and the UGM detects an open circuit at this output	Power Cycled	X	X
3378	HEAD TAIL LIGHT – SHORT TO BATTERY	MACHINE SETUP → H & T LIGHTS =YES and the UGM detects a short to battery at this output	Power Cycled	X	X
3379	HOUR METER – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
3381	HOUR METER – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
3382	PLATFORM LEVEL UP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3383	PLATFORM LEVEL UP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Platform Level Up and Down permitted after controls are initialized	X	X
3384	PLATFORM LEVEL UP VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
3388	PLATFORM LEVEL DOWN VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3389	PLATFORM LEVEL DOWN VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Platform Level Up and Platform Level Down permitted after controls are initialized	X	X
3390	PLATFORM LEVEL DOWN VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
3394	PLATFORM ROTATE LEFT VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3395	PLATFORM ROTATE LEFT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Platform Rotate Left and Right permitted after controls are initialized	X	X
3396	PLATFORM ROTATE LEFT VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
3397	PLATFORM ROTATE RIGHT VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
3398	PLATFORM ROTATE RIGHT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Platform Rotate Left and Right permitted after controls are initialized	X	X

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3399	PLATFORM ROTATE RIGHT VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33100	JIB LIFT UP VALVE - SHORT TO GROUND	MACHINE SETUP → JIB = YES; The UGM detects a short to ground at this output	Power Cycled	X	X
33101	JIB LIFT UP VALVE - OPEN CIRCUIT	MACHINE SETUP → JIB = YES; The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Jib Lift Up and Down permitted after controls are initialized	X	X
33102	JIB LIFT UP VALVE - SHORT TO BATTERY	MACHINE SETUP → JIB = YES; The UGM detects a short to battery at this output	Power Cycled	X	X
33103	JIB LIFT DOWN VALVE - SHORT TO GROUND	MACHINE SETUP → JIB = YES; The UGM detects a short to ground at this output	Power Cycled	X	X
33104	JIB LIFT DOWN VALVE - OPEN CIRCUIT	MACHINE SETUP → JIB = YES; The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Jib Lift Up permitted after controls are initialized Full speed Jib Lift Down permitted after controls are initialized	X	X
33105	JIB LIFT DOWN VALVE - SHORT TO BATTERY	MACHINE SETUP → JIB = YES; The UGM detects a short to battery at this output	Power Cycled	X	X
33106	TOWER LIFT UP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33107	TOWER LIFT UP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Tower Lift Up and Down permitted after controls are initialized		
33109	TOWER LIFT DOWN VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33110	TOWER LIFT DOWN VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Tower Lift Up permitted after controls are initialized; Full speed Tower Lift Down permitted after controls are initialized		
33118	SWING RIGHT VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33119	SWING RIGHT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Swing Left and Right permitted after controls are initialized	X	X
33120	TELESCOPE IN VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33122	SWING LEFT VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X

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33123	TELESCOPE OUT VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33130	THROTTLE ACTUATOR – SHORT TO GROUND	MACHINE SETUP → ENGINE The UGM detects a short to ground at this output	Power Cycled		
33131	THROTTLE ACTUATOR – OPEN CIRCUIT	MACHINE SETUP → ENGINE The UGM detects an open circuit at this output	Power Cycled		
33132	THROTTLE ACTUATOR – SHORT TO BATTERY	MACHINE SETUP → ENGINE The UGM detects a short to battery at this output	Power Cycled		
33182	LIFT VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Lift Up or Lift Down valve	Power Cycled	X	X
33186	TELESCOPE OUT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Telescope In and Out permitted after controls are initialized	X	X
33187	TELESCOPE VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Tele In or Tele Out valve.	Power Cycled		
33188	TELESCOPE OUT VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33189	TELESCOPE IN VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Telescope Out permitted after controls are initialized; Full speed Telescope In permitted after controls are initialized	X	X
33190	TELESCOPE IN VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33208	HORN – SHORT TO BATTERY	The UGM detects a short to battery on J2-27	Power Cycled	X	X
33276	APU PUMP RELAY - OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
33277	APU PUMP RELAY - SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33278	APU PUMP RELAY - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33279	GLOWPLUG – OPEN CIRCUIT	MACHINE SETUP → ENGINE ≠ DEUTZ EMR4 MACHINE SETUP → GLOW PLUG ≠ NO The UGM detects an open circuit at this output	Power Cycled	X	X

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33280	GLOWPLUG – SHORT TO BATTERY	MACHINE SETUP → ENGINE ≠ DEUTZ EMR4 MACHINE SETUP → GLOW PLUG ≠ NO The UGM detects a short to battery at this output	Power Cycled	X	X
33281	GLOWPLUG – SHORT TO GROUND	MACHINE SETUP → ENGINE ≠ DEUTZ EMR4 MACHINE SETUP → GLOW PLUG ≠ NO The UGM detects a short to ground at this output	Power Cycled	X	X
33287	LIFT – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled	X	X
33288	TELESCOPE – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled		
33295	SWING LEFT VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Swing Left and Right permitted after controls are initialized	X	X
33314	FLOW CONTROL VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Telescope, Jib Lift Up, Jib Lift Down, Platform Rotate and Platform Level permitted after controls are initialized	X	X
33315	FLOW CONTROL VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33316	FLOW CONTROL VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33317	DRIVE FORWARD VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Drive Forward and Reverse permitted after controls are initialized	X	X
33318	DRIVE VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Drive Forward or Drive Reverse valve.	Power Cycled	X	X
33319	DRIVE FORWARD VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33320	DRIVE REVERSE VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Drive Forward and Reverse permitted after controls are initialized		

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33322	DRIVE REVERSE VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33331	DRIVE – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled		
33406	LIFT UP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33407	LIFT DOWN VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
33410	DRIVE – LOSS OF CURRENT FEEDBACK	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled		
33412	SWING VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Swing Right or Swing Left valve	Power Cycled	X	X
33413	TOWER LIFT – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled		
33414	SWING – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled	X	X
33415	FLOW CONTROL VALVE – CURRENT FEEDBACK READING TOO LOW	The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled	X	X
33416	TOWER LIFT – CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled		
33417	LIFT – CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled	X	X
33418	SWING – CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled	X	X
33419	FLOW CONTROL VALVE – CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled	X	X

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33420	TRACTION LOCK VALVE – SHORT TO BATTERY	The UGM detects a short to battery at the Drive Lock valve.	Power Cycled		
33421	TRACTION LOCK VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
33422	TRACTION LOCK VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33423	OSCILLATING AXLE VALVES – SHORT TO BATTERY	The UGM detects a short to battery condition on the J1-7 output.	Power Cycled		
33424	OSCILLATING AXLE VALVES – SHORT TO GROUND	The UGM detects a short to ground condition on the J1-7 output.	Power Cycled		
33425	TOWER LIFT VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Tower Lift Up or Tower Lift Down valve.	Power Cycled		
33443	TELESCOPE – CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled		
33444	TELESCOPE DUMP VALVE – SHORT TO BATTERY	The UGM detects a short to battery at the Telescope Dump Valve	Power Cycled		
33445	TELESCOPE DUMP VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33446	TELESCOPE DUMP VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit; Full speed Telescope In and Out permitted after controls are initialized		
33447	2WD VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
33448	2WD VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
33449	2WD VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33537	AUXILIARY LIFT DOWN VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X

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33538	AUXILIARY LIFT DOWN VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit	X	X
33539	AUXILIARY LIFT DOWN VALVE - SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled	X	X
33540	AUXILIARY TOWER LIFT DOWN VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33541	AUXILIARY TOWER LIFT DOWN VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	The UGM no longer detects open circuit		
33543	OSCILLATING AXLE #1 VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33544	OSCILLATING AXLE #1 VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
33545	OSCILLATING AXLE #1 VALVE - SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
33546	OSCILLATING AXLE #2 VALVE - SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
33547	OSCILLATING AXLE #2 VALVE - OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
33548	OSCILLATING AXLE #2 VALVE - SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
33567	AUXILIARY VALVES - SHORT TO BATTERY	The UGM detects a short to battery at either the Aux Lift Down or Aux Tower Lift Down valve	Power Cycled		
33568	AUXILIARY - CURRENT FEEDBACK READING LOST	Measured feedback current < 225mA while output is active for a period of 100ms.	Power Cycled	X	X
33575	ECM PULL DOWN RESISTOR - OPEN CIRCUIT	MACHINE SETUP → ENGINE = DEUTZ EMR4; Pull down resistor not detected	Power Cycled	X	X
33642	LOW FLOW PRESSURE RELEASE – SHORT TO BATTERY	Low Flow Pressure Release is Configured; The UGM detects a short to battery at this output	Power Cycled		
33643	LOW FLOW PRESSURE RELEASE – SHORT TO GROUND	Low Flow Pressure Release is Configured; The UGM detects a short to ground at this output	Power Cycled		

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Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460S1C
33644	LOW FLOW PRESSURE RELEASE – OPEN CIRCUIT	Low Flow Pressure Release is Configured; The UGM detects an open circuit at this output	The UGM no longer detects open circuit;		
349	PLATFORM ROTATE LEFT VALVE – OPEN CIRCUIT	The PM detects an open circuit at this output and reports it to the UGM	The PM no longer detects open circuit; Full speed Platform Rotate Right and Left permitted after controls are initialized		
3410	PLATFORM ROTATE LEFT VALVE – SHORT TO BATTERY	The PM detects a short to battery at this output and reports it to the UGM	Power Cycled		
3411	PLATFORM ROTATE LEFT VALVE – SHORT TO GROUND	The PM detects a short to ground at this output and reports it to the UGM	Power Cycled		
3412	PLATFORM ROTATE RIGHT VALVE – OPEN CIRCUIT	The PM detects an open circuit at this output and reports it to the UGM	The PM no longer detects open circuit; Full speed Platform Rotate Right and Left permitted after controls are initialized		
3413	PLATFORM ROTATE RIGHT VALVE – SHORT TO BATTERY	The PM detects a short to battery at this output and reports it to the UGM	Power Cycled		
3414	PLATFORM ROTATE RIGHT VALVE – SHORT TO GROUND	The PM detects a short to ground at this output and reports it to the UGM	Power Cycled		
3415	JIB LIFT UP VALVE – OPEN CIRCUIT	MACHINE SETUP → JIB = YES The PM detects an open circuit at this output and reports it to the UGM	The PM no longer detects open circuit; Full speed Jib Lift Up and Down permitted after controls are initialized		
3416	JIB LIFT UP VALVE – SHORT TO BATTERY	MACHINE SETUP → JIB = YES The PM detects a short to battery at this output and reports it to the UGM	Power Cycled		
3417	JIB LIFT UP VALVE – SHORT TO GROUND	MACHINE SETUP → JIB = YES The PM detects a short to ground at this output and reports it to the UGM	Power Cycled		
3418	JIB LIFT DOWN VALVE – OPEN CIRCUIT	MACHINE SETUP → JIB = YES The PM detects an open circuit at this output and reports it to the UGM	The PM no longer detects open circuit; Jib Lift Up permitted after controls are initialized Full speed Jib Lift Down permitted after controls are initialized		
3419	JIB LIFT DOWN VALVE – SHORT TO BATTERY	MACHINE SETUP → JIB = YES The PM detects a short to battery at this output and reports it to the UGM	Power Cycled		
3420	JIB LIFT DOWN VALVE – SHORT TO GROUND	MACHINE SETUP → JIB = YES The PM detects a short to ground at this output and reports it to the UGM; detection occurs for PWM output approximately ≤ 15% or for STG condition.	Power Cycled		
431	FUEL SENSOR - SHORT TO BATTERY OR OPEN CIRCUIT	MACHINE SETUP → FUEL LEVEL = SENSOR; UGM fuel sensor analog input J2-25 detects a voltage higher than 2.50 volts (A/D > 512)	Power Cycled	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	4605JC
432	FUEL SENSOR - SHORT TO GROUND	MACHINE SETUP → FUEL LEVEL = SENSOR; UGM fuel sensor analog input J2-25 detects a voltage less than or equal to 0.3 volts (A/D < 61)	Power Cycled	X	X
433	OIL PRESSURE - SHORT TO BATTERY	MACHINE SETUP → ENGINE Oil Pressure = Ok at Startup with Engine RPM = 0 (occurs for STB or OC – wire off switch)	Power Cycled		
435	COOLANT TEMPERATURE - SHORT TO GROUND	MACHINE SETUP → ENGINE UGM coolant temperature analog input J1- 14 detects a voltage less than or equal to 0.05 volts	Not all of the trigger conditions are met		
437	ENGINE TROUBLE CODE	An engine with a CAN engine controller is configured in MACHINE SETUP The engine controller reports a J1939 fault	Power Cycled	X	X
438	HIGH ENGINE TEMP	An engine with a CAN engine controller is <u>not</u> configured in MACHINE SETUP: - The Engine State = ENGINE RUNNING > 10 seconds - The coolant temperature is greater than or equal to the configured engines max allowed temperature. The maximum allowed temperature > 110°C. An engine with a CAN engine controller is configured in MACHINE SETUP: - ECM transmits a J1939 DM1 message for an engine coolant high temperature critical fault (SPN:FMI 110:0) on CAN2 or uses the J1939 Transport Protocol every one second to send this information if multiple engine faults exist.	Power Cycled	X	X
4310	NO ALTERNATOR OUTPUT	The Engine State = ENGINE RUNNING > 10 seconds and UGM system voltage < 11.5 volts for 10 seconds	UGM system voltage > 11.7 volts	X	X
4311	LOW OIL PRESSURE	An engine with a CAN engine controller is not configured in MACHINE SETUP - The Engine State = ENGINE RUNNING > 10 seconds - The engine oil pressure is LOW (debounce 3s). An engine with a CAN engine controller is configured in MACHINE SETUP - ECM transmits a J1939 DM1 message for an engine oil low pressure critical fault (SPN:FMI 100:1) on CAN2 or uses the J1939 Transport Protocol every one second to send this information if multiple engine faults exist.	Power Cycled	X	X
4313	THROTTLE ACTUATOR FAILURE	MACHINE SETUP → ENGINE THROTTLE ACTUATOR – OPEN CIRCUIT (33131) is not active THROTTLE ACTUATOR – SHORT TO GROUND (33130) is not active LOSS OF ENGINE SPEED SENSOR (4322) is not active If Target Engine RPM ≥ Mid-Engine RPM and Actual RPM ≤ 1400 (debounce time = 3s) when no fault exists with Proportional Fuel Rack actuator	Power Cycled		

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Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460SJC
4314	WRONG ENGINE SELECTED – ECM DETECTED	An engine with an electronic engine controller is not configured	Power Cycled		
4322	LOSS OF ENGINE SPEED SENSOR	An engine with a CAN engine controller is not configured in MACHINE SETUP LOW OIL PRESSURE (4311) is not active OIL PRESSURE SHORT TO BATTERY (433) is not active. No engine shutdown command exists Engine State = ENGINE RUNNING Engine RPM = 0 for 1500ms and Engine oil pressure is not LOW.	Engine RPM > 0		
4323	SPEED SENSOR READING INVALID SPEED	An engine with a CAN engine controller is not configured in MACHINE SETUP The engine RPM reading is greater than 4000	Power Cycled		
4326	FUEL ACTUATOR – SHORT TO GROUND	MACHINE SETUP → ENGINE The UGM detects a short to ground at this output	Power Cycled		
4327	FUEL ACTUATOR – OPEN CIRCUIT	MACHINE SETUP → ENGINE The UGM detects an open circuit at this output	Power Cycled		
4328	FUEL ACTUATOR – SHORT TO BATTERY	MACHINE SETUP → ENGINE The UGM detects a short to battery at this output	Power Cycled		
4329	FUEL ACTUATOR - CURRENT FEEDBACK READING TOO LOW	MACHINE SETUP → ENGINE; The Engine State = ENGINE RUNNING; The UGM commanded current > 250mA; The difference between the commanded current and the measured feedback current > [the larger of (125mA) or (15% of the commanded function Max)] for longer than 1 second	Power Cycled		
4330	FUEL ACTUATOR – CURRENT FEEDBACK READING LOST	MACHINE SETUP → ENGINE Measured feedback current < 225mA while PWM output > 40% for a period of 100ms.	Power Cycled		
4334	ENGINE COOLANT – LOW LEVEL	MACHINE SETUP → ENGINE = DEUTZ EMR4; ECM transmits a J1939 DM1 message for an engine coolant low level fault (SPN:FMI 111:1) on CAN2 or uses the J1939 Transport Protocol every one second to send this information if multiple engine faults exist.	Power Cycled	X	X
4375	WATER IN FUEL			X	X
441	BATTERY VOLTAGE TOO LOW – SYSTEM SHUTDOWN	The UGM detects that its supply voltage is less than 9 volts Engine State ≠ ENGINE CRANKING Auxiliary Power/Emergency Descent Mode is not active	Voltage is greater than 9.25 volts	X	X
442	BATTERY VOLTAGE TOO HIGH – SYSTEM SHUTDOWN	The UGM detects that its supply voltage >16.0 volts	Power Cycled	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460SJC
443	LSS BATTERY VOLTAGE TOO HIGH	MACHINE SETUP → LOAD SYSTEM ≠ NO; The UGM determines that the LSS reports supply voltage > 16.0V	Not all of the trigger conditions are met	X	X
444	LSS BATTERY VOLTAGE TOO LOW	MACHINE SETUP → LOAD SYSTEM ≠ NO; Engine State ≠ ENGINE CRANKING or ENGINE STARTING; Auxiliary Power/Emergency Descent Mode is not active; If Load System is the 4-Cell LSS; The UGM determines that the LSS reports supply voltage < 9.0V If Load System is the 1-Cell LSS; The UGM determines that the LSS reports supply voltage < 8.0V or the LSS Supply Voltage reports Out of Range Low Error	Not all of the trigger conditions are met	X	X
445	BATTERY VOLTAGE LOW	The UGM detects that its supply voltage < 11 volts for 5 seconds. Engine State ≠ ENGINE CRANKING Auxiliary Power/Emergency Descent Mode is not active Glow Plugs are not energized	Voltage is greater than 11.25 volts	X	X
4479	LSS BATTERY VOLTAGE - INITIALIZATION ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; LSS Supply Voltage reports Initialization Error	Power Cycled	X	X
4480	LSS BATTERY VOLTAGE - NOT CALIBRATED	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; LSS Supply Voltage reports Not Calibrated Error	Power Cycled	X	X
662	CANBUS FAILURE – PLATFORM MODULE	UGM does not receive any CAN messages from the PM in 250ms	CAN messages are received from the PM	X	X
663	CANBUS FAILURE – LOAD SENSING SYSTEM MODULE	MACHINE SETUP → LOAD SYSTEM ≠ NO UGM does not receive any CAN messages from the LSS module in 250ms	Not all of the trigger conditions are met	X	X
666	CANBUS FAILURE – ENGINE CONTROLLER	An engine with a CAN engine controller is configured in MACHINE SETUP. No CAN messages are received from the engine controller for more than 250ms	CAN messages are received from the engine controller; UGM shall require re-activation of Footswitch (Platform Mode) or Ground Enable (Ground Mode) to enable functions and resume operation.	X	X
6613	CANBUS FAILURE – EXCESSIVE CANBUS ERRORS	More than 22 error frames per second for 4 seconds or more than 500 Buss Off conditions since last power cycle.	Power Cycled	X	X
6622	CANBUS FAILURE – TCU MODULE	MACHINE SETUP → CLEARSKY = YES No CAN2 messages are received from the TCU module for more than 30 seconds	Not all of the trigger conditions are met	X	X
6635	CANBUS FAILURE – CHASSIS TILT SENSOR	UGM does not receive any CAN messages from the Chassis Tilt Sensor in 250ms	CAN messages are received from the Chassis tilt Sensor and controls are initialized	X	X
6651	CANBUS FAILURE - GROUND DISPLAY	UGM does not receive any CAN messages from the Ground Display in 250ms	CAN messages are received from the Ground Display	X	X

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Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	4605JC
6657	CANBUS FAILURE – TEMPERATURE SENSOR	MACHINE SETUP → TEMP CUTOUT = YES; UGM does not receive any CAN messages from the Ambient Temperature sensor in 250ms	CAN messages are received from the Ambient Temperature sensor	X	X
681	REMOTE CONTRACT MANAGEMENT OVERRIDE – ALL FUNCTIONS IN CREEP	MACHINE SETUP → CLEARSKY = YES Value set by ClearSky TCU	Cleared by ClearSky TCU	X	X
813	CHASSIS TILT SENSOR NOT CALIBRATED	"The UGM detects one of the follow conditions: The tilt sensor has not been calibrated; A new Tilt Sensor has been installed.	Tilt sensor calibrated	X	X
814	CHASSIS TILT SENSOR OUT OF RANGE	Fault CHASSIS TILT SENSOR NOT CALIBRATED (813) is not present and Tilt sensor measurement > 19° for 4 seconds (internal tilt sensor based machines) or > 35° (external tilt sensor based machines) Not to be reported during Tilt Sensor calibration.	Not all of the trigger conditions are met.	X	X
815	CHASSIS TILT SENSOR DISAGREEMENT	The UGM detects one of the following conditions: If a Drive, Steer, or Boom function is active or if the engine is cranking or if the primary raw Tilt Sensor readings > ±5° then: if the two ground board tilt sensors disagree by more than or equal to 3 degrees for either the X axis or the Y axis for longer than 5 seconds then the fault will be logged. If no Drive, Steer, or Boom functions are active and the engine is not cranking or the primary raw Tilt Sensor readings < ±5° then: if the two ground board tilt sensors disagree by more than or equal to 1 degrees for either the X axis or the Y axis for longer than 3 seconds then the fault will be logged. Do not report if DTC 814 is active.	Power Cycled		
818	TILT SENSOR STAGNANT	The UGM detects the following conditions: The X axis or Y axis raw readings change by < ±0.05° in 5 second; Drive Forward or Drive Reverse output value is ≥ Creep output value; Do not report if DTC 6635, 813 or 814 are active	Power Cycled	X	X
8112	CHASSIS TILT SENSOR - SINGLE POINT CALIBRATION PERFORMED	Single point Chassis Tilt calibration is successfully completed	Fault shall be retentive through Power Cycled; Can be reset if CALIBRATIONS → TILT SENSOR is successfully completed	X	X
821	LSS CELL #1 ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; The UGM detects that LSS is reporting error with Cell #1	Not all of the trigger conditions are met	X	X
822	LSS CELL #2 ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; The UGM detects that LSS is reporting error with Cell #2	Not all of the trigger conditions are met	X	X
823	LSS CELL #3 ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; The UGM detects that LSS is reporting error with Cell #3	Not all of the trigger conditions are met	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	4605JC
824	LSS CELL #4 ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; The UGM detects that LSS is reporting error with Cell #4.	Not all of the trigger conditions are met	X	X
825	LSS HAS NOT BEEN CALIBRATED	MACHINE SETUP → LOAD SYSTEM ≠ NO If Load System is the 4-Cell LSS; The load sensor has not been calibrated, or DTC 992 (LSS EEPROM ERROR) is active, or DTC 9977 (LSS CORRUPT EEPROM) is active If Load System is the 1-Cell LSS; The LSS serial number does not match	Not all of the trigger conditions are met	X	X
826	RUNNING AT CREEP – PLATFORM OVERLOADED	Refer to Table 7-1 for trigger conditions and machine response requirements	Not all of the trigger conditions are met	X	X
828	LIFT UP & TELE OUT PREVENTED – PLATFORM OVERLOADED	Refer to Table 7-1 for trigger conditions and machine response requirements	Not all of the trigger conditions are met	X	X
829	FUNCTIONS CUTOUT – PLATFORM OVERLOADED	Refer to Table 7-1 for trigger conditions and machine response requirements	Not all of the trigger conditions are met	X	X
8211	LSS READING UNDER WEIGHT	MACHINE SETUP → LOAD SYSTEM ≠ NO; If Load System is the 4-Cell LSS; The load sensor has been calibrated and Gross Platform Weight < (0.5 * Empty Platform Weight); If Load System is the 1-Cell LSS; UGM determines that the Platform Load < (-1.5 * Unloaded Platform Weight); If Load System is the 1-Cell LSS; Drive Forward / Reverse or Lift Up output value is ≥ Creep output value; Platform Load is < -50 lb for the first 5 seconds of command; Do not report if DTC (0030 or 825) is active or if Platform Load == Unhealthy	If Load System is the 4-Cell LSS; Not all of the trigger conditions are met If Load System is the 1-Cell LSS; Power Cycled	X	X
8218	LSS SENSOR DISAGREEMENT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; The UGM detects that (Platform Load 1 and Platform Load 2 disagree by 50 lb for longer than 3 seconds) or (that Platform Gross 1 and Platform Gross 2 disagree by 200 lb for longer than 3 seconds); Do not report if (DTC 8222 or 8223) is active or if Platform Load == Unhealthy, Platform Gross 1 == Unhealthy or Platform Gross 2 == Unhealthy	Power Cycled	X	X
8222	LSS STRAIN GAUGE 1 - STAGNANT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Engine State ≠ (ENGINE CRANKING or ENGINE STARTING) > 2 seconds; Load System is the 1-Cell LSS; Strain Gauge 1 raw reading does change value for 5 seconds; Do not report if Platform Gross 1 == Unhealthy	Power Cycled	X	X

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Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460SJC
8223	LSS STRAIN GAUGE 2 - STAGNANT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Engine State ≠ (ENGINE CRANKING or ENGINE STARTING) > 2 seconds; Load System is the 1-Cell LSS; Strain Gauge 2 raw reading does change value for 5 seconds; Do not report if DTC Platform Gross 2= = Unhealthy	Power Cycled	X	X
8224	LSS STRAIN GAUGE 1 - OUT OF RANGE LOW	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports an Out of Range Low error	Power Cycled	X	X
8225	LSS STRAIN GAUGE 2 - OUT OF RANGE LOW	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports an Out of Range Low error	Power Cycled	X	X
8226	LSS STRAIN GAUGE 1 - OUT OF RANGE HIGH	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports an Out of Range High error	Power Cycled	X	X
8227	LSS STRAIN GAUGE 2 - OUT OF RANGE HIGH	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports an Out of Range High error	Power Cycled	X	X
8228	LSS STRAIN GAUGE 1 - INITIALIZATION ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Engine State ≠ (ENGINE CRANKING or ENGINE STARTING) > 2 seconds; Load System is the 1-Cell LSS; Strain Gauge 1 reports an Initialization error	Power Cycled	X	X
8229	LSS STRAIN GAUGE 2 - INITIALIZATION ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Engine State ≠ (ENGINE CRANKING or ENGINE STARTING) > 2 seconds; Load System is the 1-Cell LSS; Strain Gauge 2 reports an Initialization error	Power Cycled	X	X
8230	LSS STRAIN GAUGE 1 - NOT CALIBRATED	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports a Not Calibrated error	Power Cycled	X	X
8231	LSS STRAIN GAUGE 2 - NOT CALIBRATED	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports a Not Calibrated error	Power Cycled	X	X
8232	LSS STRAIN GAUGE 1 - SENSOR DEFECT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports a Sensor Defect error	Power Cycled	X	X
8233	LSS STRAIN GAUGE 2 - SENSOR DEFECT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports a Sensor Defect error	Power Cycled	X	X
8234	LSS STRAIN GAUGE 1 - NOT INSTALLED	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports a Not Installed error	Power Cycled	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460SJC
8235	LSS STRAIN GAUGE 2 - NOT INSTALLED	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports a Not Installed error	Power Cycled	X	X
8236	LSS NOT DETECTING CHANGE	MACHINE SETUP → LOAD SYSTEM ≠ NO; Machine is in Platform Mode; Load System is the 1-Cell LSS; Drive Forward / Reverse or Lift Up output value is ≥ Creep output value; Platform Load does not change (peak to peak) by more than 1 lb within the first 5 seconds of the command; Do not report if Platform Load == Unhealthy	Power Cycled	X	X
8237	LSS STRAIN GAUGE 1 - A/D DEFECT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 1 reports a A/D Defect error	Power Cycled	X	X
8238	LSS STRAIN GAUGE 2 - A/D DEFECT	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; Strain Gauge 2 reports a A/D Defect error	Power Cycled	X	X
8639	FRONT LEFT STEER VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
8640	FRONT LEFT STEER VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
8641	FRONT LEFT STEER VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
8642	FRONT RIGHT STEER VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled		
8643	FRONT RIGHT STEER VALVE – SHORT TO BATTERY	The UGM detects a short to battery at this output	Power Cycled		
8644	FRONT RIGHT STEER VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled		
8652	RIGHT TRACK FORWARD VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
8654	RIGHT TRACK FORWARD VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
8655	RIGHT TRACK REVERSE VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X

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Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	4005C	46051C
8657	RIGHT TRACK REVERSE VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
8658	LEFT TRACK FORWARD VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
8660	LEFT TRACK FORWARD VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
8661	LEFT TRACK REVERSE VALVE – OPEN CIRCUIT	The UGM detects an open circuit at this output	Power Cycled	X	X
8663	LEFT TRACK REVERSE VALVE – SHORT TO GROUND	The UGM detects a short to ground at this output	Power Cycled	X	X
8669	OSCILLATING AXLE SWITCH DISAGREEMENT	The UGM detects that Oscillating Axle switch #1 and switch #2 are not reporting congruent switch states, as defined in the Oscillating Axle Switch Evaluation section. Not to be reported if DTC 23104 BOOM TRANSPORT SWITCH DISAGREEMENT is active.	Power Cycled		
8690	LEFT TRACK VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Left Track Forward or Left Track Reverse valves	Power Cycled	X	X
8691	RIGHT TRACK VALVES – SHORT TO BATTERY	The UGM detects a short to battery at either the Right Track Forward or Right Track Reverse valves	Power Cycled	X	X
873	MACHINE SAFETY SYSTEM OVERRIDE OCCURRED	MSSO = Active	Fault shall be retentive through Power Cycled; Can be reset only with an Analyzer via the CALIBRATIONS → MSSO → MSSO RESET menu	X	X
991	LSS WATCHDOG RESET	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; UGM detects LSS report of an anomaly exists that has caused a WatchDog Timer reset.	Power Cycled	X	X
992	LSS EEPROM ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; UGM detects LSS report of an anomaly that exists in the LSS EEPROM	Power Cycled	X	X
993	LSS INTERNAL ERROR – PIN EXCITATION	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; UGM detects LSS report of improper excitation voltage	Power Cycled	X	X
994	LSS INTERNAL ERROR – DRDY MISSING FROM A/D	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; UGM detects LSS report of an anomaly that exists in the LSS A/D converter operations.	Power Cycled	X	X
998	EEPROM FAILURE - CHECK ALL SETTINGS	The UGM has detected an anomaly in EEPROM	Power Cycled	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	4605JC
9910	FUNCTIONS LOCKED OUT - PLATFORM MODULE SOFTWARE VERSION IMPROPER	The UGM software version type is 'P' The UGM has received valid version information from the PM The PM software version type is 'P' The UGM software major version number does not match the major version number of the platform software	Not all of the trigger conditions are met	X	X
9911	FUNCTION LOCKED OUT - LSS MODULE SOFTWARE VERSION IMPROPER	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 4-Cell LSS; The UGM determines that the LSS software version is not compatible with existing code per the referenced Software Version Compatibility table.	Power Cycled	X	X
9915	CHASSIS TILT SENSOR NOT GAIN CALIBRATED	The tilt sensor gain calibration values recorded to flash memory during Phoenix International's manufacturing test are not present	Valid values are present	X	X
9919	GROUND SENSOR REF VOLTAGE OUT OF RANGE	The UGM has detected reference voltage is out of range: 2.3V < Reference Voltage < 2.7V	Power Cycled		
9920	PLATFORM SENSOR REF VOLTAGE OUT OF RANGE	The PM detects that its reference voltage is out of range and reports the fault to the UGM	Power Cycled	X	X
9921	GROUND MODULE FAILURE:HIGH SIDE DRIVER CUTOFF FAULTY	The engine is not running The engine is not cranking The UGM footswitch input J7-15 is LOW The machine is in Platform Mode The Main Dump output J2-13 is detected as HIGH via the analog feedback 300ms after it is attempted to be activated during the one time startup test of the UGM hardware shutoff circuitry	Power Cycled	X	X
9922	PLATFORM MODULE FAILURE: HWFS CODE 1	The PM detects that its V(low) FET has failed and reports this fault to the UGM	Power Cycled	X	X
9924	FUNCTIONS LOCKED OUT - MACHINE NOT CONFIGURED	The machine is powered up and no model has been selected yet in the MACHINE SETUP menu	Power Cycled	X	X
9927	GROUND MODULE CONSTANT DATA UPDATE REQUIRED	The UGM detects one of the following conditions when software type is 'P' or 'B': The Version Verification Word #1 or the Version Verification Word #2 values located in the constant data sector of flash memory (found on constant data spreadsheet tab pstConstantDataVersion) do not match the values located in the code area of flash memory. The Version Major value located in the constant data sector of flash memory (found on constant data spreadsheet tab pstConstantDataVersion) does not match the value located in the code area of flash memory.	A different application code or constant data version is programmed so that the values match Power Cycled	X	X
9944	CURRENT FEEDBACK GAINS OUT OF RANGE	One or more of the current feedback gains that are calculated and written to flash memory during the PIC manufacturing test process are detected as being out of range.	Power Cycled	X	X

Table 6-13. Diagnostic Trouble Code Chart

DTC	Help Message	Fault Condition/Trigger (For configurable items, fault applies only if configured. All listed conditions to be met unless stated otherwise)	Conditions Required for Movement and/or to Clear Fault	400SC	460SJC
9945	CURRENT FEEDBACK CALIBRATION CHECKSUM INCORRECT	The current feedback gains checksum that is calculated and written to flash memory during the PIC manufacturing test process is detected as being incorrect.	Power Cycled	X	X
9949	MACHINE CONFIGURATION OUT OF RANGE – CHECK ALL SETTINGS	UGM has detected an anomaly in EEPROM with regard to the Machine Setup configuration.	Power Cycled and EEPROM data in associated area is changed	X	X
9977	LSS CORRUPT EEPROM	MACHINE SETUP → LOAD SYSTEM ≠ NO;	Power Cycled	X	X
9979	FUNCTIONS LOCKED OUT - GROUND MODULE SOFTWARE VERSION IMPROPER	Ground software has been installed on a UGM with a ST10F274 processor (Hardware Rev < 6), which does not have guaranteed flash storage in the sector where Constant Data is written.	Power Cycled	X	X
9986	GROUND MODULE VLOW FET FAILURE	VLow FET determined to be failed because all Digital Inputs are high; UGM unable to read high-sensing inputs.	Power Cycled	X	X
99285	LSS - FACTORY CALIBRATION ERROR	MACHINE SETUP → LOAD SYSTEM ≠ NO; Load System is the 1-Cell LSS; LSS reports an Error Status (other than 0,1,2,8,30,31)	Power Cycled	X	X

6.9 TILT SENSOR CALIBRATION

Refer to Figure 6-23., Tilt Sensor Location.

⚠ WARNING

DO NOT CALIBRATE THE TILT SENSOR EXCEPT ON A LEVEL SURFACE.

1. Position the Platform/Ground select switch to the Platform position.



MAE17700

2. Plug the analyzer into the connector at the base of the platform control box.



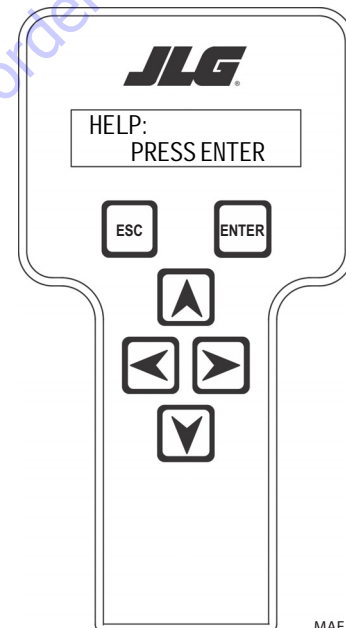
MAE15680

3. Pull out the Emergency Stop switch and Start the engine.



MAE17820

4. The analyzer screen should read:




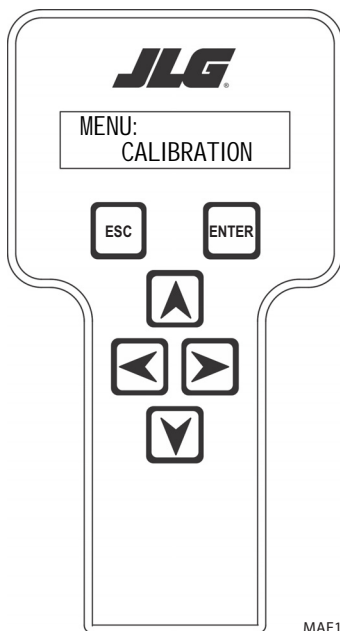
MAE19060

5. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
6. Enter the Access Code, 33271.
7. Place the machine on a firm, level surface.

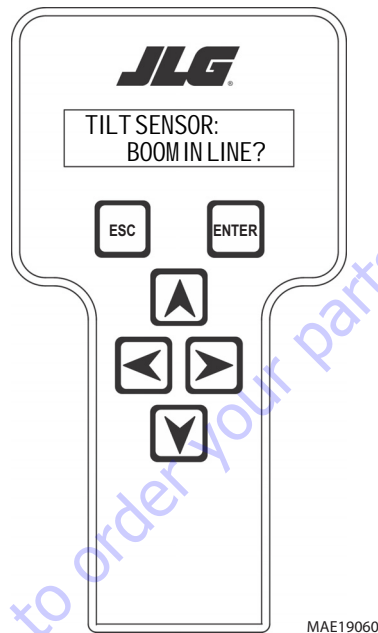
SECTION 6 - JLG CONTROL SYSTEM

8. Using the arrow keys, navigate to Calibrations Menu as


shown below and press **ENTER** .

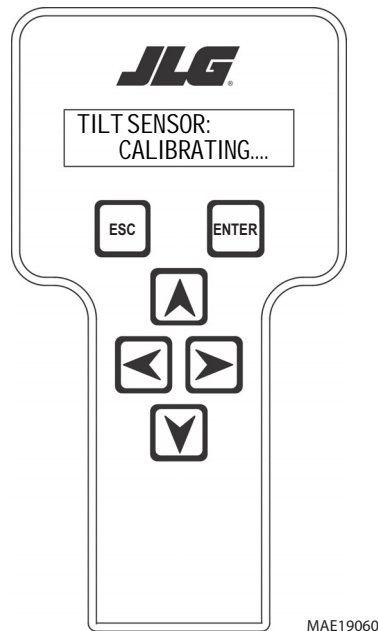
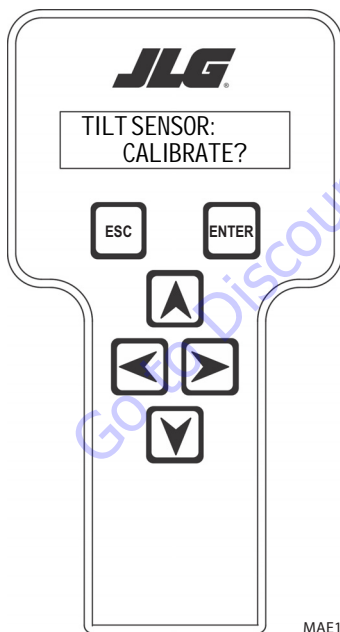


UGM will confirm the position of the boom, then the screen will read:

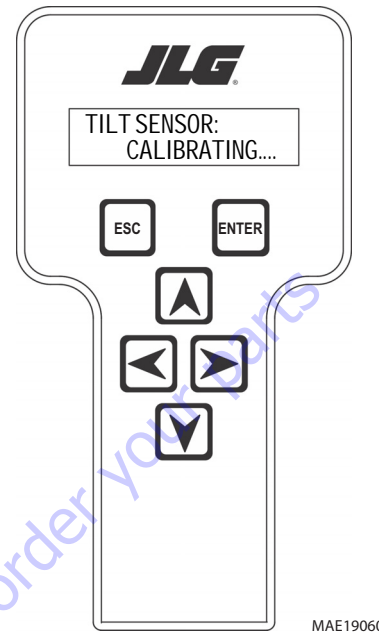
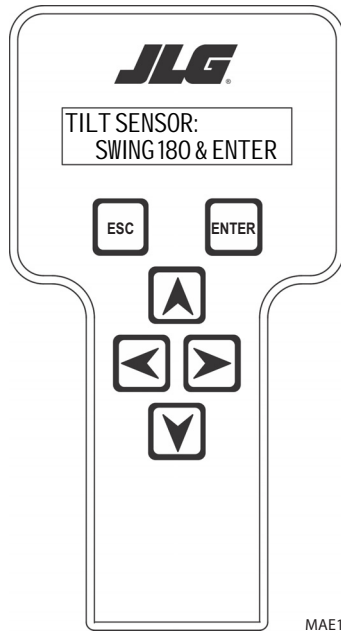


9. Using the arrow keys, navigate to the Tilt Sensor calibration as shown below and press **ENTER** .

tion as shown below and press **ENTER** .



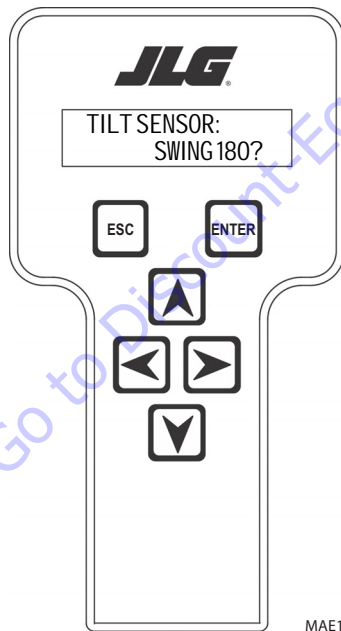
5. When the sensor is calibrated in that position, the screen will read:



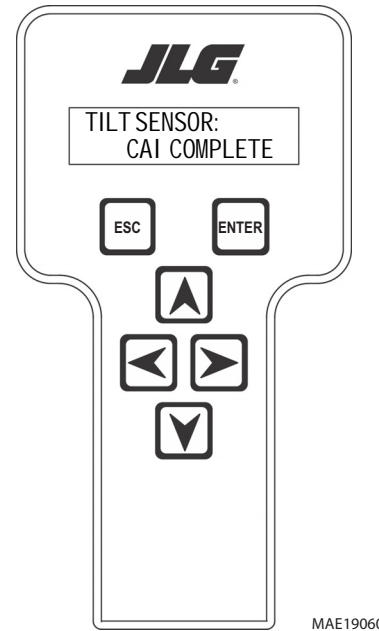
6. Swing the machine 180 degrees, making sure the boom is centered and in the transport position, and **ENTER**

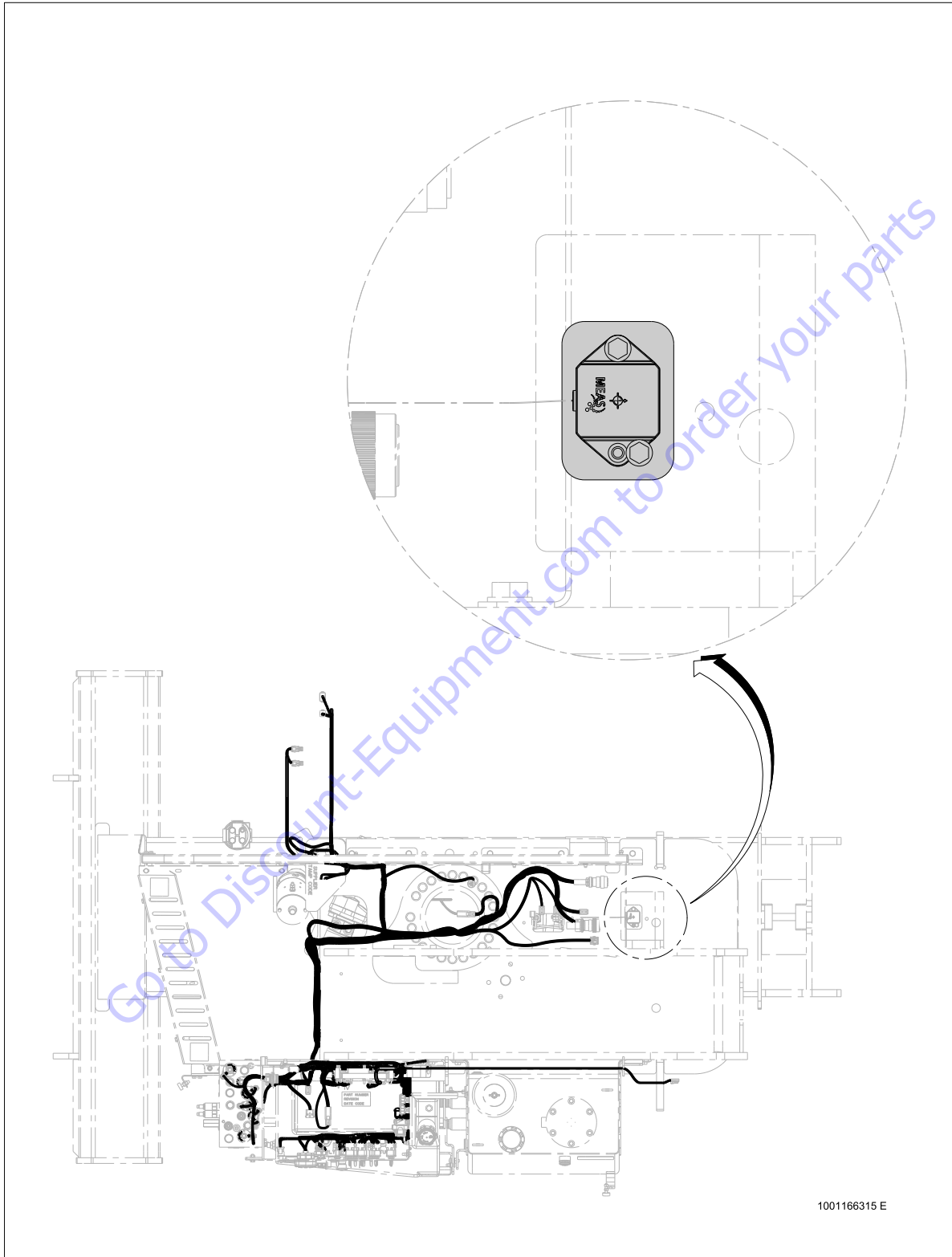


. The screen will read:



7. When the calibration is complete the screen will read as shown below. Return the machine to the travel position.





1001166315 E

Figure 6-23. Tilt Sensor Location

6.10 CALIBRATING BOOM ANGLE

1. Position the Platform/Ground select switch to the Platform position.



MAE17700

2. Plug the analyzer into the connector at the base of the platform control box.



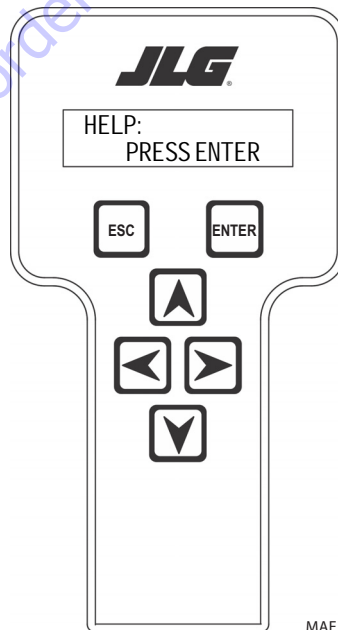
MAE15680

3. Pull out the Emergency Stop switch and Start the engine.



MAE17820

4. The analyzer screen should read:

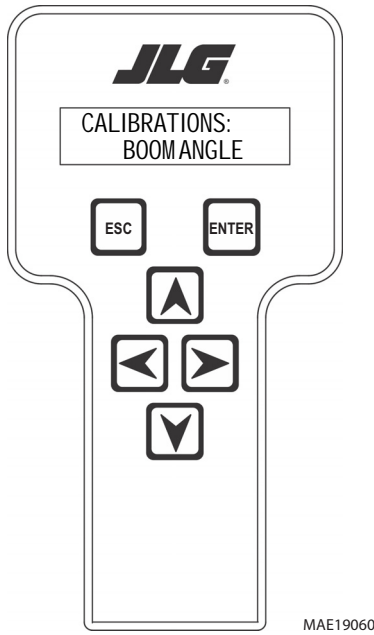


MAE19060

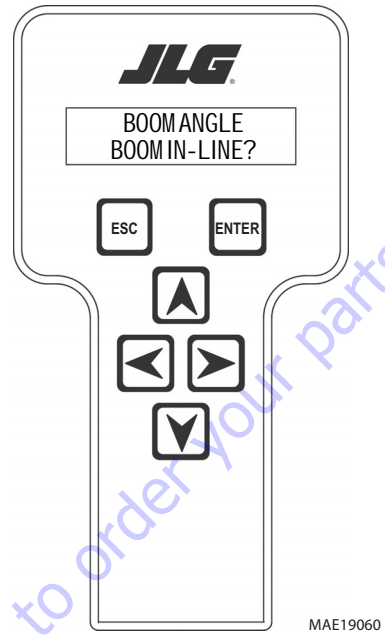
5. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
6. Enter the Access Code, 33271.
7. Use the right Arrow key to reach CALIBRATIONS. Hit Enter.

SECTION 6 - JLG CONTROL SYSTEM

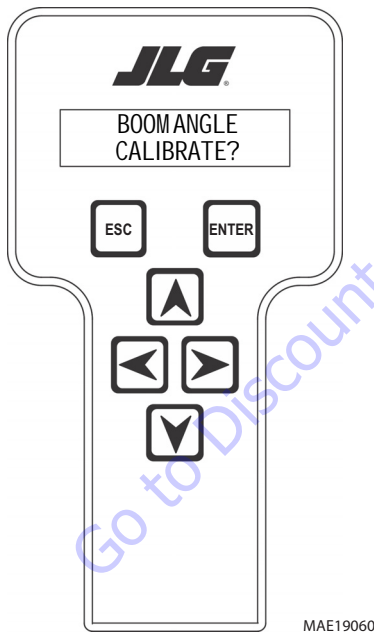
8. Use arrow keys to reach BOOM ANGLE. The Screen will read:



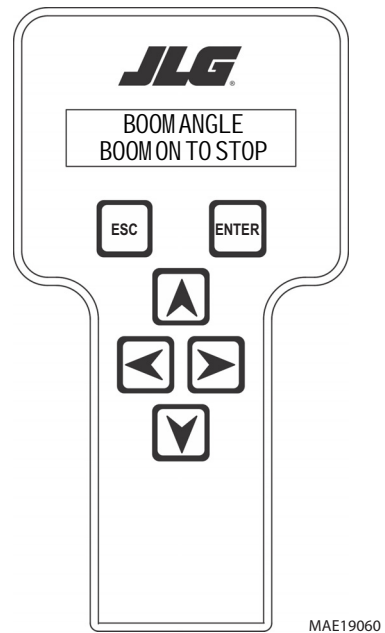
10. UGM will confirm the Boom In-Line position. The screen will read:



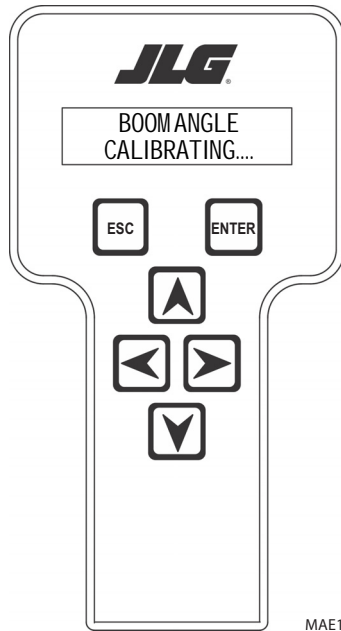
9. Hit Enter. The screen will read:



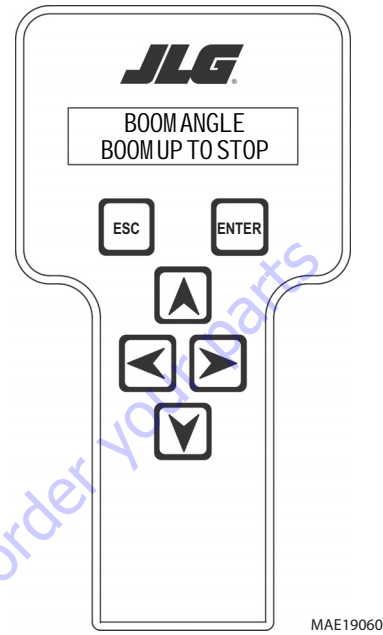
11. Hit Enter. The Screen will read:



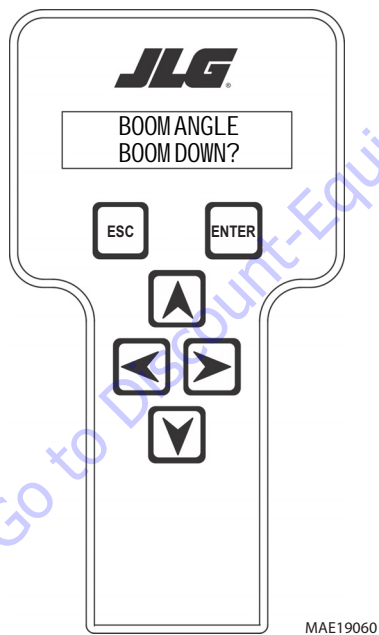
12. When the sensor is calibrated at lower position of the boom. The screen will read:



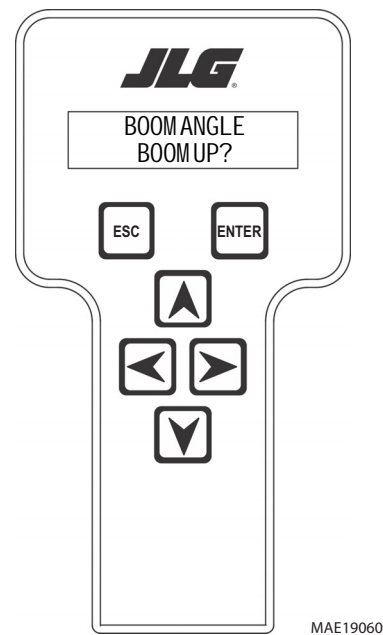
14. If the calibrating values are under acceptable limits, Raise the boom and press Enter. The screen will read:



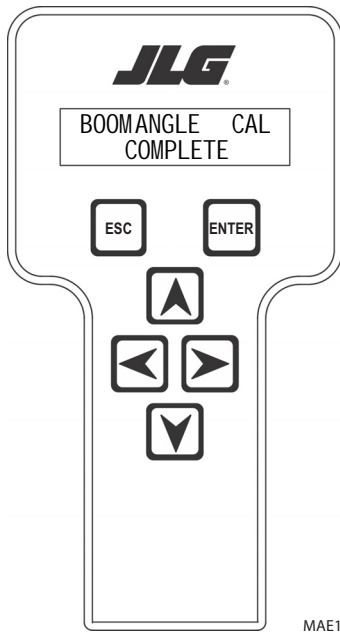
13. UGM will confirm the position of the boom. Press Enter. The screen will read:



15. UGM will confirm the position of the boom. Press Enter. The screen will read:



16. After few seconds. The screen will read:



17. Hit ESC twice to go back to CALIBRATIONS.

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6.11 CALIBRATING LOAD SENSING

NOTE: Calibration sub-menu *LOAD SENSING* is visible only if *MACHINE SET-UP* sub-menu *LOAD SYSTEM* is selected to *NO*.

1. Position the Platform/Ground select switch to the Platform position.



MAE17700

2. Plug the analyzer into the connector at the base of the platform control box.



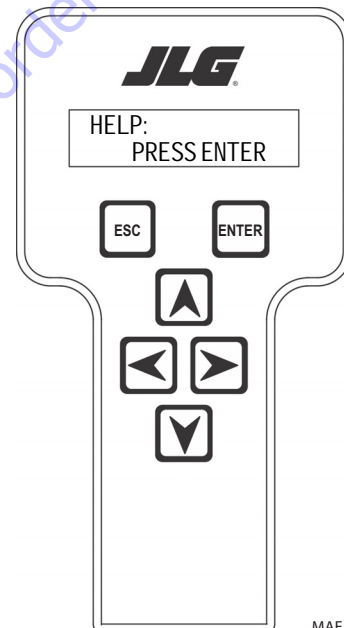
MAE15680

3. Pull out the Emergency Stop switch and Start the engine.



MAE17820

4. The analyzer screen should read:

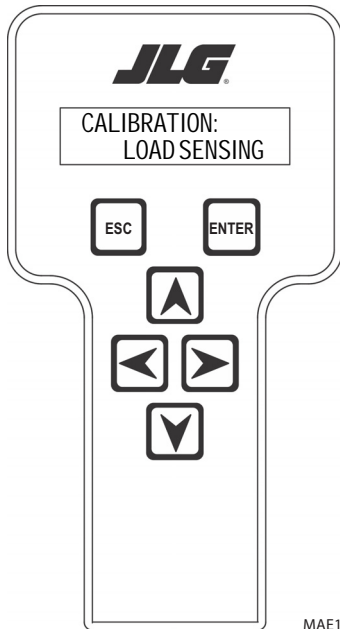


MAE19060

5. Use the arrow button to reach ACCESS LEVEL. Hit Enter.
6. Enter the Access Code, 33271.
7. Use the right Arrow key to reach CALIBRATIONS. Hit Enter.

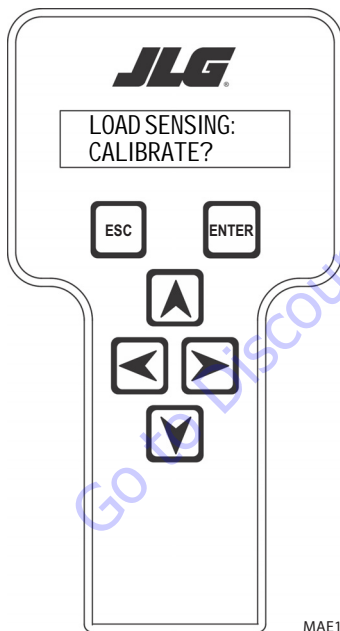
SECTION 6 - JLG CONTROL SYSTEM

8. Use the arrow keys to navigate the Load Sensing calibration as shown below.



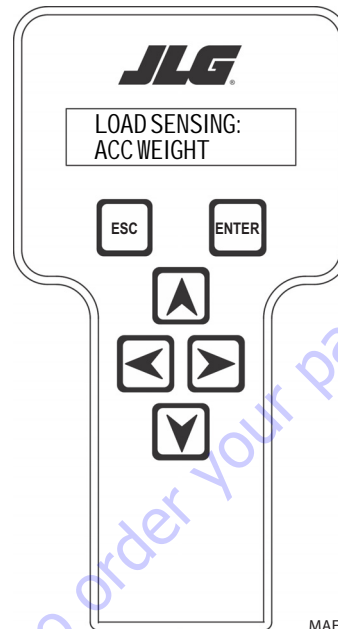
MAE19060

9. Press **ENTER** . The screen will read:



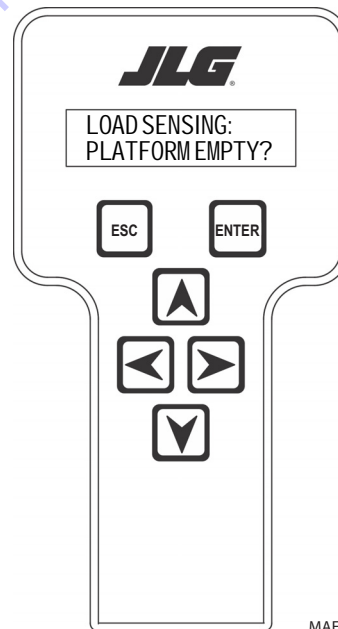
MAE19060

10. Hit Enter. The screen will read:



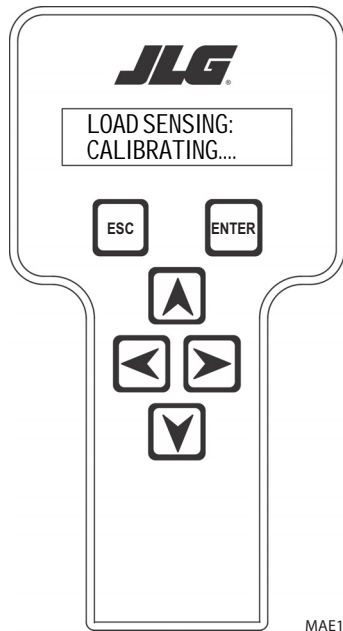
MAE19060

11. Hit Enter. The screen will read:



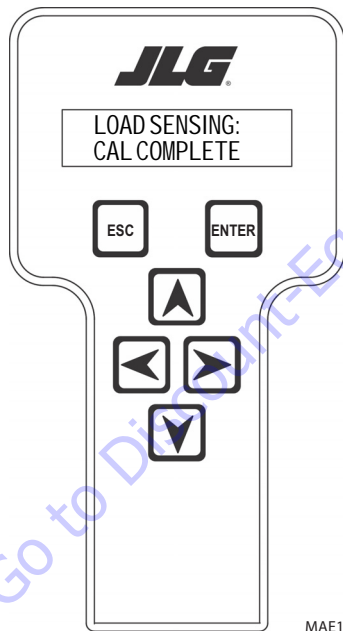
MAE19060

12. Hit Enter. The screen will read:



MAE19060

13. After few seconds, the screen will read:



MAE19060

14. Hit ESC twice to go back to CALIBRATIONS.

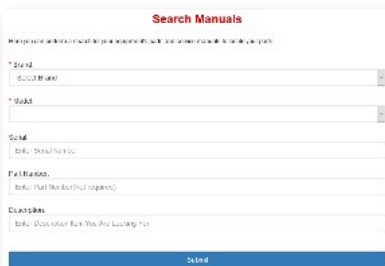
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SECTION 7. BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

7.1 GENERAL

This section contains basic electrical information and schematics to be used for locating and correcting most of the operating problems which may develop. If a problem should develop which is not presented in this section or which is not corrected by listed corrective actions, technically qualified guidance should be obtained before proceeding with any maintenance.

NOTE: Some of the procedures/connectors shown in this section may not be applicable to all models.

7.2 MULTIMETER BASICS

A wide variety of multimeters or Volt Ohm Meters (VOM) can be used for troubleshooting your equipment. This section shows diagrams of a common, digital VOM configured for several different circuit measurements. Instructions for your VOM may vary. Please consult the meter operator's manual for more information.

Grounding

"Grounding the meter" means to take the black lead (which is connected to the COM (common) or negative port) and touch it to a good path to the negative side of the Voltage source.

Backprobing

To "backprobe" means to take the measurement by accessing a connector's contact on the same side as the wires, the back of the connector. Readings can be done while maintaining circuit continuity this way. If the connector is the sealed type, great care must be taken to avoid damaging the seal around the wire. It is best to use probes or probe tips specifically designed for this technique, especially on sealed connectors. Whenever possible insert probes into the side of the connector such that the test also checks both terminals of the connection. It is possible to inspect a connection within a closed connector by backprobing both sides of a connector terminal and measuring resistance. Do this after giving each wire a gentle pull to ensure the wires are still attached to the contact and contacts are seated in the connector.

Min/Max

Use of the "Min/Max" recording feature of some meters can help when taking measurements of intermittent conditions while alone. For example, you can read the Voltage applied to a solenoid when it is only operational while a switch, far from the solenoid and meter, is held down.

Polarity

Getting a negative Voltage or current reading when expecting a positive reading frequently means the leads are reversed. Check what reading is expected, the location of the signal and that the leads are connected to the device under test correctly. Also check that the lead on the "COM" port goes to the Ground or negative side of the signal and the lead on the other port goes to the positive side of the signal.

Scale

M = Mega = 1,000,000 * (Displayed Number)

k = kilo = 1,000 * (Displayed Number)

m = milli = (Displayed Number) / 1,000

μ = micro = (Displayed Number) / 1,000,000

Example: 1.2 kW = 1200 W

Example: 50 mA = 0.05 A

Voltage Measurement

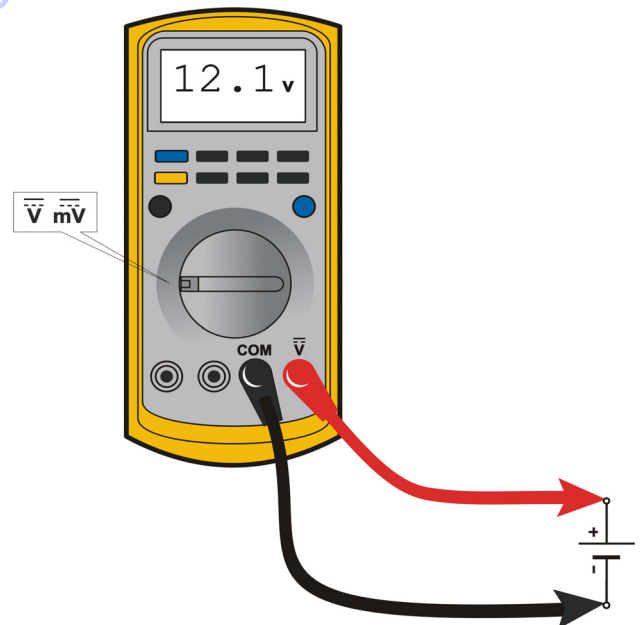


Figure 7-1. Voltage Measurement (DC)

- If meter is not auto ranging, set it to the correct range (See multimeter's operation manual)
- Use firm contact with meter leads

Resistance Measurement

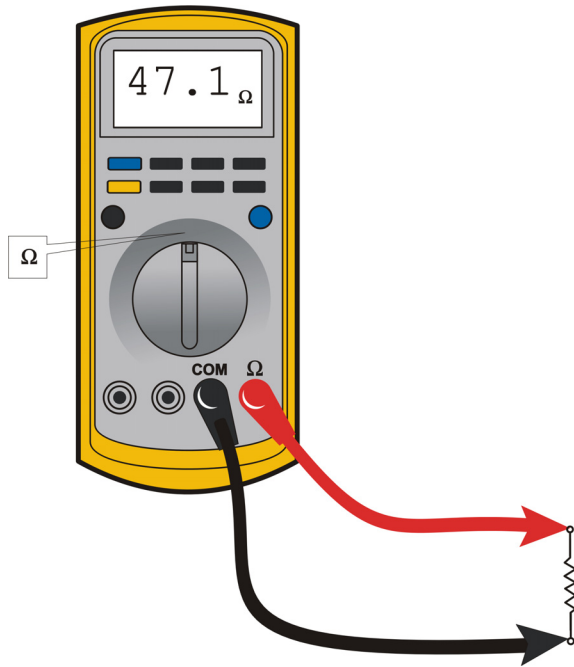


Figure 7-2. Resistance Measurement

- First test meter and leads by touching leads together. Resistance should read a short circuit (very low resistance)
- Circuit power must be turned OFF before testing resistance
- Disconnect component from circuit before testing
- If meter is not auto ranging, set it to the correct range (See multimeter's operation manual)
- Use firm contact with meter leads

Continuity Measurement

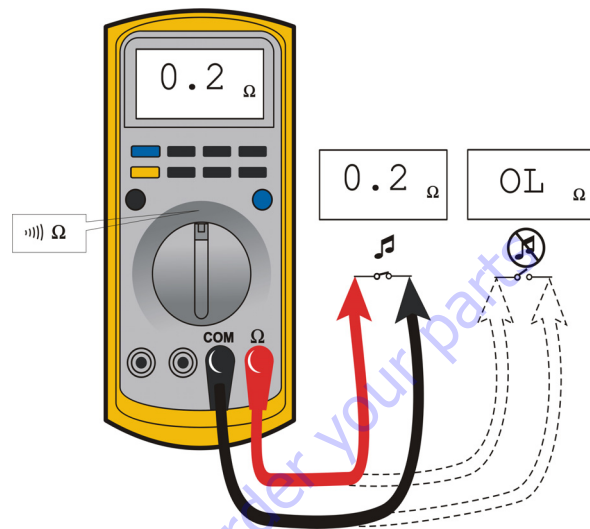


Figure 7-3. Continuity Measurement

- Some meters require a separate button press to enable audible continuity testing
- Circuit power must be turned OFF before testing continuity
- Disconnect component from circuit before testing
- Use firm contact with meter leads
- First test meter and leads by touching leads together. Meter should produce an audible alarm, indicating continuity

Current Measurement

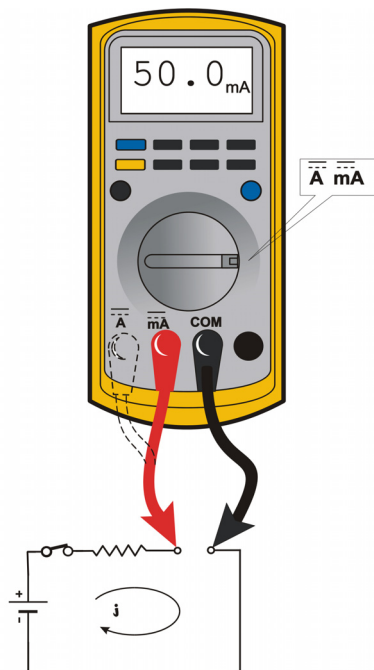


Figure 7-4. Current Measurement (DC)

- Set up the meter for the expected current range
- Be sure to connect the meter leads to the correct jacks for the current range you have selected
- If meter is not auto ranging, set it to the correct range (See multi meter's operation manual)
- Use firm contact with meter leads

7.3 APPLYING SILICONE DIELECTRIC COMPOUND TO ELECTRICAL CONNECTIONS

NOTE: This section is not applicable for battery terminals.

NOTICE

JLG P/N 0100048 DIELECTRIC GREASE (NOVAGARD G661) IS THE ONLY MATERIAL APPROVED FOR USE AS A DIELECTRIC GREASE.

NOTE: Do NOT apply dielectric grease to the following connections:

- Main Boom Rotary sensor connections (on Celesco Sensor),
- LSS Modules connections,
- Deutz EMR 2 ECM connection.

Silicone Dielectric Compound must be used on all electrical connections except for those mentioned above for the following reasons:

- To prevent oxidation at the mechanical joint between male and female pins.
- To prevent electrical malfunction caused by low level conductivity between pins when wet.

Use the following procedure to apply Silicone Dielectric Compound to the electrical connectors. This procedure applies to all plug connections not enclosed in a box. Silicone grease should not be applied to connectors with external seals.

1. To prevent oxidation, silicone grease must be packed completely around male and female pins on the inside of the connector prior to assembly. This is most easily achieved by using a syringe.

NOTE: Over a period of time, oxidation increases electrical resistance at the connection, eventually causing circuit failure.

2. To prevent shorting, silicone grease must be packed around each wire where they enter the outside of the connector housing. Also, silicone grease must be applied at the joint where the male and female connectors come together. Any other joints (around strain reliefs, etc.) where water could enter the connector should also be sealed.

NOTE: This condition is especially common when machines are pressure washed since the washing solution is much more conductive than water.

- Anderson connectors for the battery boxes and battery chargers should have silicone grease applied to the contacts only.

NOTE: *Curing-type sealants might also be used to prevent shorting and would be less messy, but would make future pin removal more difficult.*

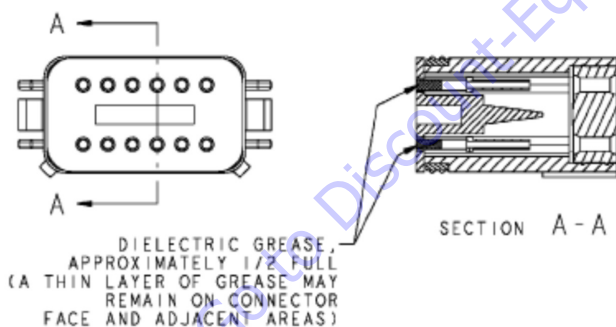
When applied to electrical connections, dielectric grease helps to prevent corrosion of electrical contacts and improper conductivity between contacts from moisture intrusion. Open and sealed connectors benefit from the application of dielectric grease.

Dielectric grease shall be applied to all electrical connectors at the time of connection (except those noted under Exclusions).

Installation of Dielectric Grease

Before following these instructions, refer to excluded connector types (See Exclusions below).

- Use dielectric grease in a tube for larger connection points or apply with a syringe for small connectors.
- Apply dielectric grease to the female contact (fill it approximately 1/2 full; see example below)
- Leave a thin layer of dielectric grease on the face of the connector
- Assemble the connector system immediately to prevent moisture ingress or dust contamination
- Pierce one of the unused wire seals prior to assembly if the connector system tends to trap air (i.e. AMP Seal) and then install a seal plug.



Deutsch HD, DT, DTM, DRC Series

The Deutsch connector system is commonly used for harsh environment interconnect. Follow the installation instructions.



AMP Seal

The AMP Seal connector system is used on the Control ADE Platform and Ground Modules.

Apply dielectric grease to the female contact. If trapped air prevents the connector from latching, pierce one of the unused wire seals. After assembly, install a seal plug (JLG #4460905) in that location to prevent moisture ingress.

Note that seal plugs may be installed by the wire harness manufacturer if an unused wire seal becomes compromised (wire inserted in the wrong cavity during assembly and then corrected).



Figure 7-5. Application to Female Contacts

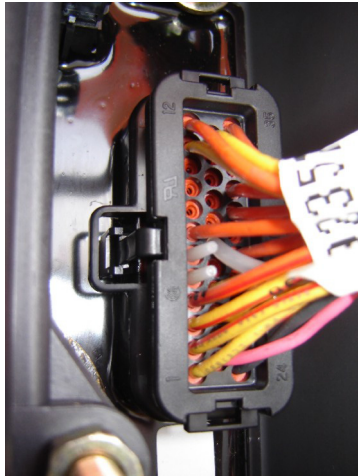


Figure 7-6. Use of Seal Plugs

DIN Connectors

This connector is typically used on hydraulic valves. Follow the installation instructions.

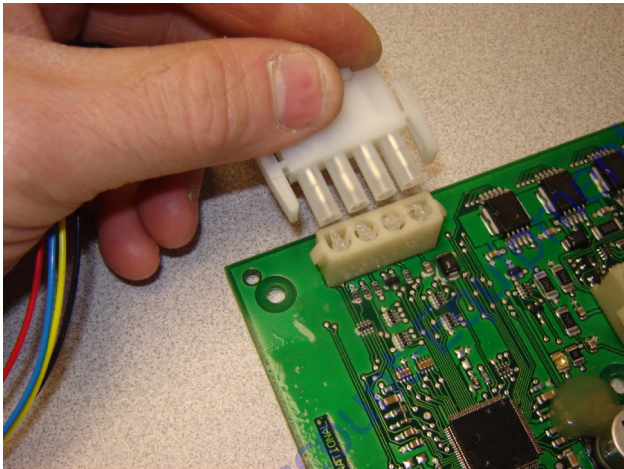


Exclusions

A limited number of connectors do not benefit from dielectric grease, or may be permanently damaged by application. Dielectric grease may not be required in properly sealed enclosures.

AMP Mate-N-Lok

Follow the installation instructions.



BRAD HARRISON / PHOENIX CONTACT M12

The connector uses gold contact material to resist corrosion and an o-ring seal for moisture integrity. If dielectric grease is mistakenly applied to this connector system, the low-force contacts cannot displace the grease to achieve electrical contact. Once contaminated, there is no practical way to remove the dielectric grease (replacement of female contacts required). The JLG Load Sensing System and 1250AJP Rotary Angle Sensors are examples of components with the M12 connector system.



AMP JUNIOR TIMER

This type of connector uses back-seals for moisture integrity. However, the low-force contacts cannot displace dielectric grease and create electrical contact. It is possible to use solvents (i.e. contact cleaner or mineral spirits) for the removal of improperly applied dielectric grease. The EMR2 engine control module from Deutz employs this connector system (for example).



7.4 AMP CONNECTOR

Assembly

Check to be sure the wedge lock is in the open, or as-shipped, position (See Figure 7-7.). Proceed as follows:

2. Pull back on the contact wire with a force of 1 or 2 lb to be sure the retention fingers are holding the contact (See Figure 7-9.).

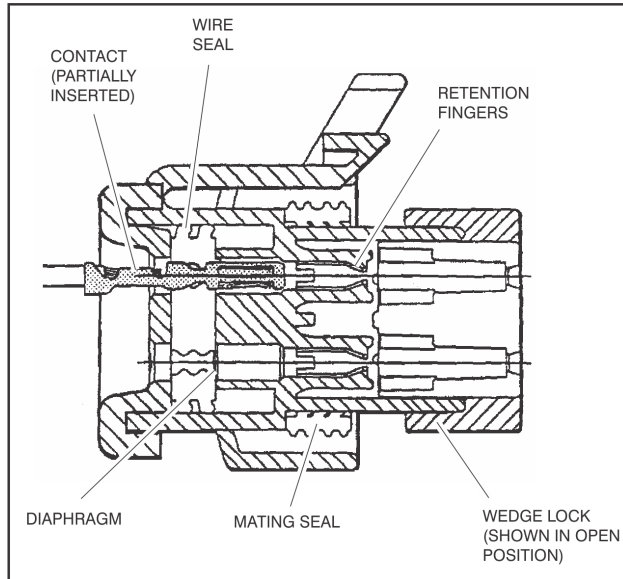


Figure 7-7. Connector Assembly Figure 1

1. To insert a contact, push it straight into the appropriate circuit cavity as far as it will go (See Figure 7-9.).

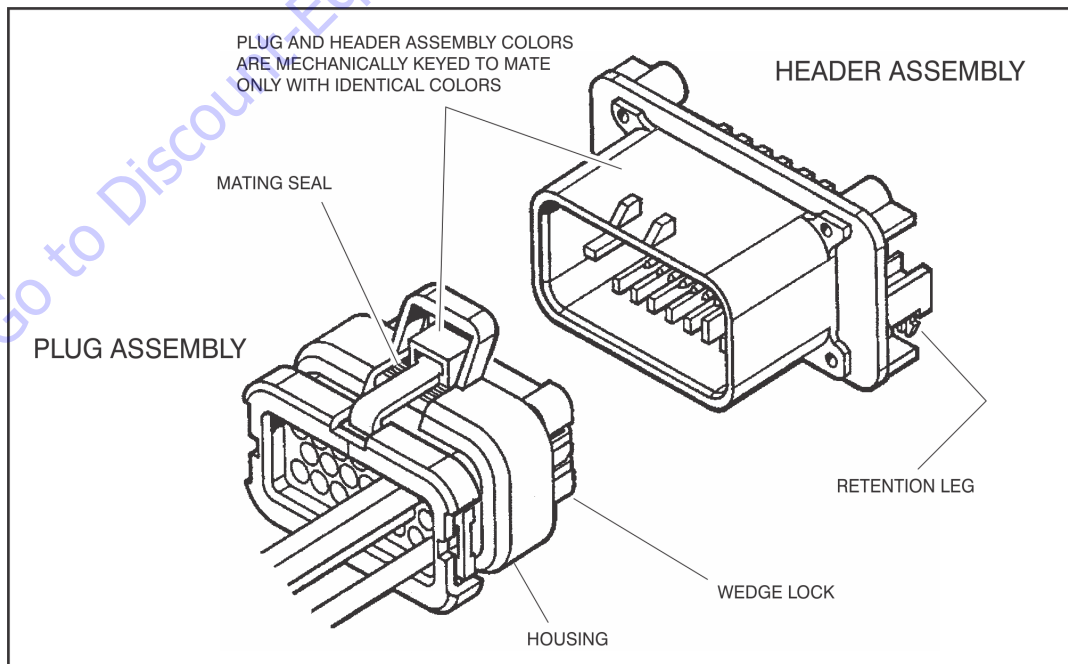


Figure 7-8. AMP Connector

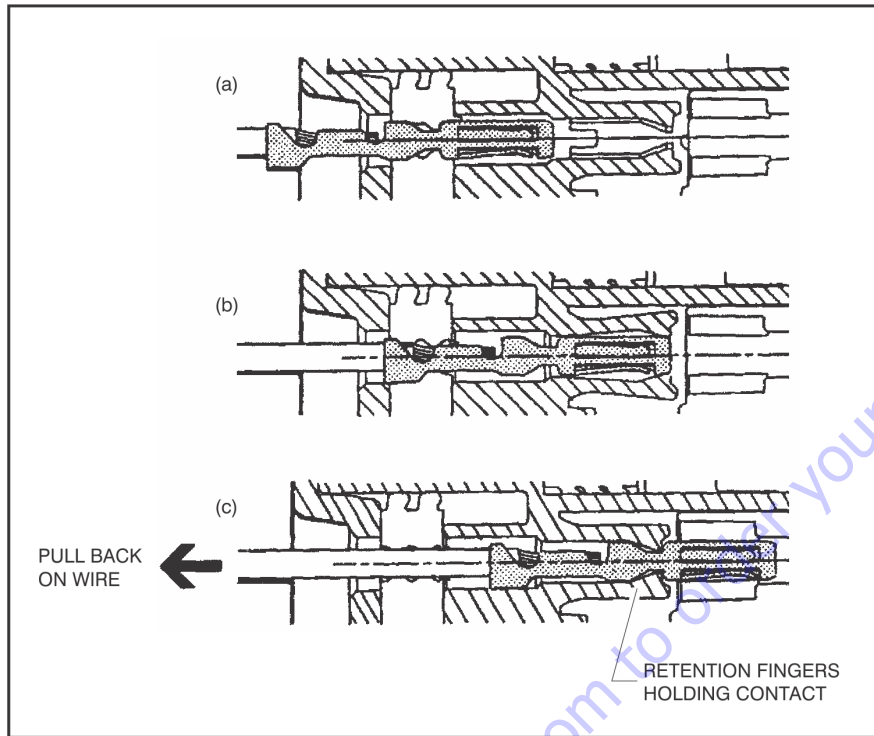


Figure 7-9. Connector Assembly Figure 2

3. After all required contacts have been inserted, the wedge lock must be closed to its locked position. Release the locking latches by squeezing them inward (See Figure 7-10.).
4. Slide the wedge lock into the housing until it is flush with the housing (See Figure 7-11.).

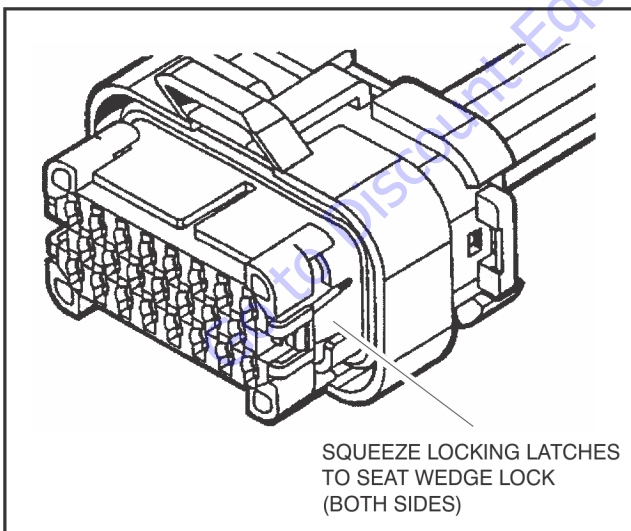


Figure 7-10. Connector Assembly Figure 3

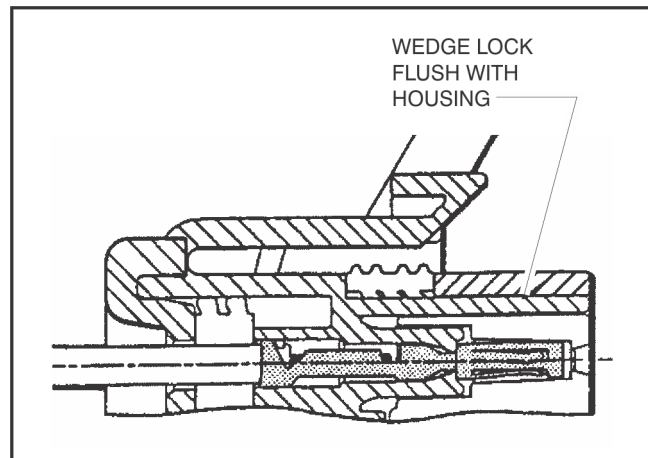


Figure 7-11. Connector Assembly Figure 4

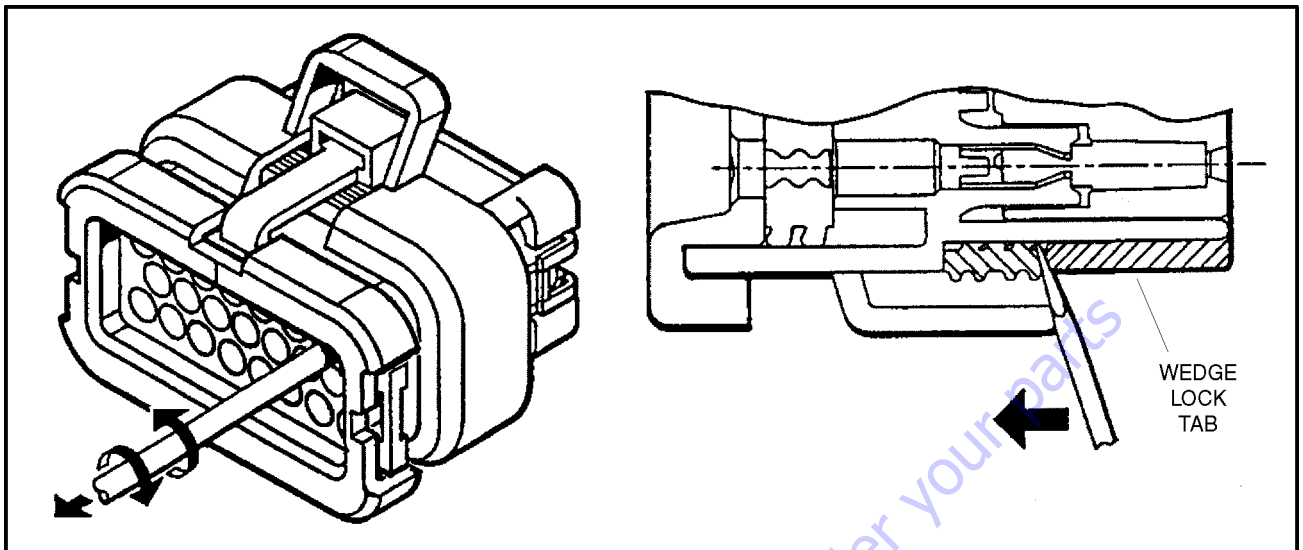


Figure 7-12. Connector Disassembly

Disassembly

1. Insert a 4.8 mm (3/16") wide screwdriver blade between the mating seal and one of the red wedge lock tabs.
2. Pry open the wedge lock to the open position.
3. While rotating the wire back and forth over a half turn (1/4 turn in each direction), gently pull the wire until the contact is removed.

NOTE: The wedge lock should never be removed from the housing for insertion or removal of the contacts.

Wedge Lock

The wedge lock has slotted openings in the forward, or mating end. These slots accommodate circuit testing in the field, by using a flat probe such as a pocket knife. DO NOT use a sharp point such as an ice pick.

Service - Voltage Reading

NOTICE

DO NOT PIERCE WIRE INSULATION TO TAKE VOLTAGE READINGS.

It has been common practice in electrical troubleshooting to probe wires by piercing the insulation with a sharp point. This practice should be discouraged when dealing with the AMPSEAL plug assembly, or any other sealed connector system. The resulting pinholes in the insulation will allow moisture to invade the system by traveling along the wire strands. This nullifies the effectiveness of the connector seals and could result in system failure.

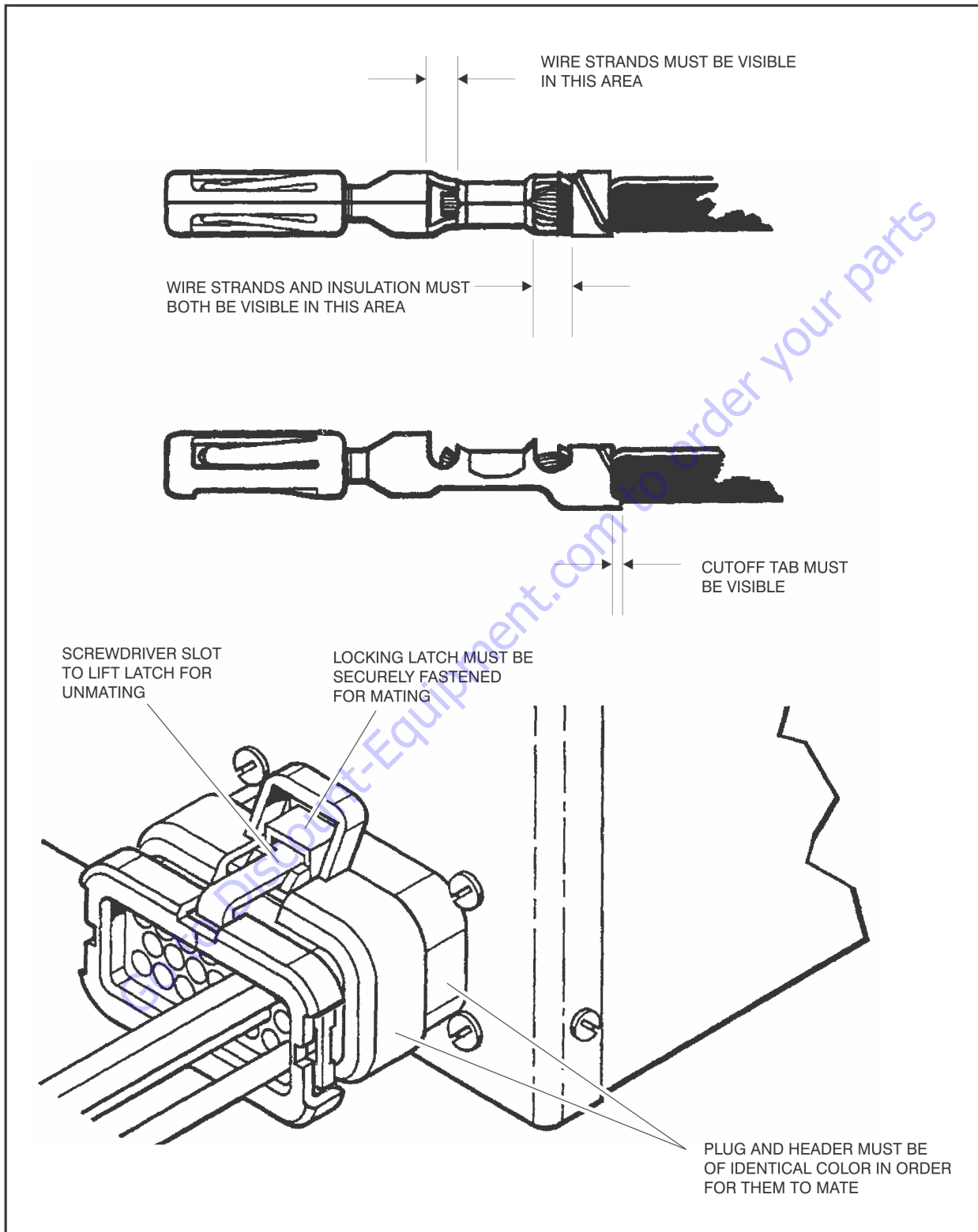


Figure 7-13. Connector Installation

7.5 DEUTSCH CONNECTORS

DT/DTP Series Assembly

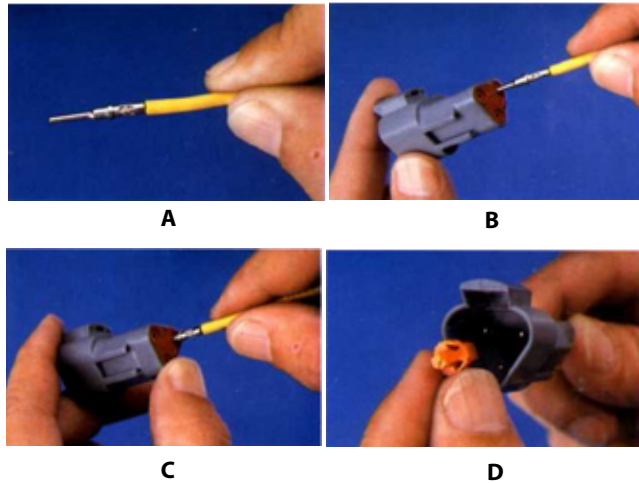


Figure 7-14. DT/DTP Contact Installation

1. Grasp crimped contact about 25mm behind the contact barrel.
2. Hold connector with rear grommet facing you.
3. Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.
4. Once all contacts are in place, insert wedgelock with arrow pointing toward exterior locking mechanism. The wedgelock will snap into place. Rectangular wedges are not oriented. They may go in either way.

NOTE: The receptacle is shown - use the same procedure for plug.

DT/DTP Series Disassembly

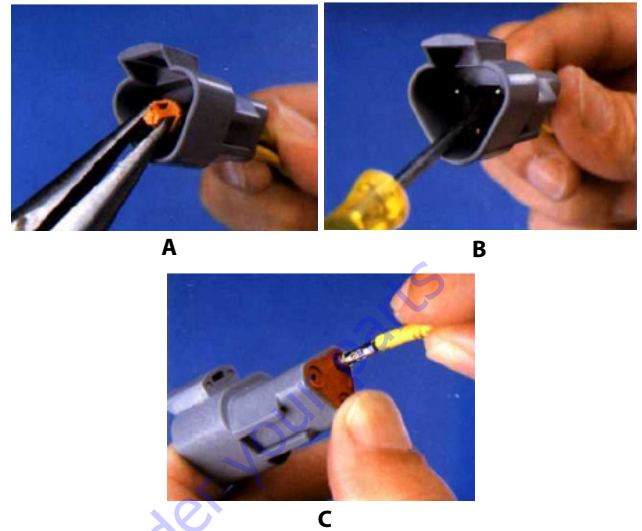


Figure 7-15. DT/DTP Contact Removal

1. Remove wedgelock using needlenose pliers or a hook shaped wire to pull wedge straight out.
2. To remove the contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.
3. Hold the rear seal in place, as removing the contact may displace the seal.

HD30/HDP20 Series Assembly

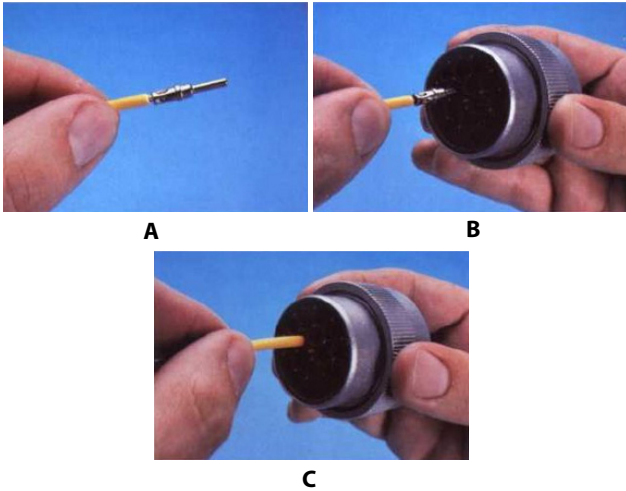


Figure 7-16. HD/HDP Contact Installation

1. Grasp contact about 25mm behind the contact crimp barrel.
2. Hold connector with rear grommet facing you.
3. Push contact straight into connector grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.

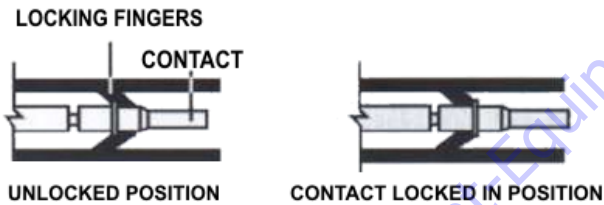


Figure 7-17. HD/HDP Locking Contacts Into Position

NOTE: For unused wire cavities, insert sealing plugs for full environmental sealing

HD30/HDP20 Series Disassembly

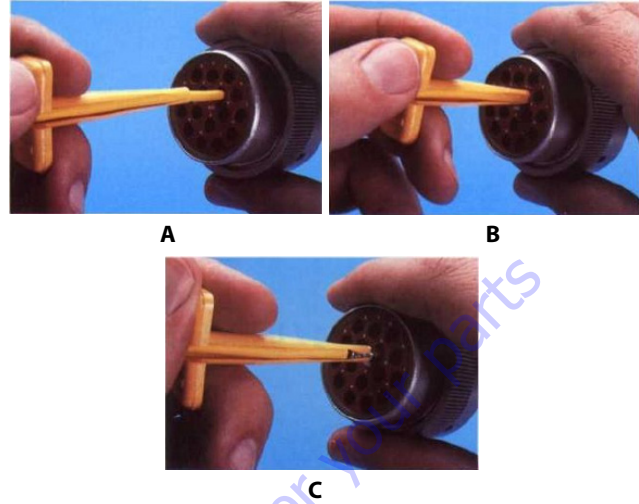


Figure 7-18. HD/HDP Contact Removal

1. With rear insert toward you, snap appropriate size extractor tool over the wire of contact to be removed.
2. Slide tool along into the insert cavity until it engages contact and resistance is felt.
3. Pull contact-wire assembly out of connector.

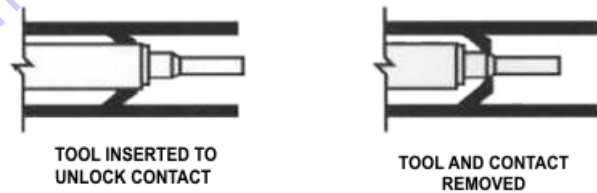


Figure 7-19. HD/HDP Unlocking Contacts

NOTE: Do Not twist or insert tool at an angle.

7.6 WIRING HARNESS

Connector Labels

Connectors between harnesses are identified by the prefix “X” and a sequentially assigned number. An optional suffix (letters & numbers) may be added when multiple terminations occur at one device or when there are optional connections.

Examples:

X25 connects to X25 in another harness.

X65A, X65B connect to different portions of one device

X163 connects to X163A in ANSI and X163B in CE machines

Component Labels

Every component on the vehicle has a unique identification. A standard prefix letter is assigned according to the table below, followed by a unique sequential number. An optional suffix (letters & numbers) may be added when multiple terminations occur at one device.

Terminals that are not loaded into connectors are considered independent components and labeled in the same fashion.

Table 7-1. Wiring Harness Connector Labels

Component	Category	Label
Audible	Alarms	AH
	Horns	
Battery	Batteries	BT
	Battery Terminals	
Control Module	Ground	CO
	LSS	
	Platform	
Engine	Alternator	EC
	Cold Start	
	Controller	
	Coolant Temp	
	Fuel Pump	
	Fuel Solenoid	
	Glow Plugs	
	Oil Pressure	
	Starter	
Fuse & CB Fuse FC	Fuse	FC
	Fusible Link	FC
	Circuit Breaker	CB
Gauge & Display	Board	GD
	Cluster	
	Hour meter	
	LMI	
	Speedometer	
Inline	Resistor	R
	Diode	D
Joystick & Steering	Electronic	JS
	Hydraulic	
Lights	Dome	LB
	Headlights	
	Simple	
	Taillights	
Membrane Panel		MP
Miscellaneous	Radio	MS
	Speakers	
	Splice Blocks	
	T-Connectors	

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

Table 7-1. Wiring Harness Connector Labels

Component	Category	Label	
Other Switches	Disconnect	SW	
	EMS		
	Foot		
		HVAC	WH
		Key	SW
		Park brake	
		Pump pot	
		Push	
		Shifter	
		Turn signal	
Relay	5 Pin	RL	
	4 Pin		
	Contactors		
	Power module		
Rocker Switch		SW	
Sensor	Angle	SN	
	Fuel		
	Length		
	Limit		
	Load		
	Pressure		
	Proximity		
	Speed		
	Temperature		
	Terminals		Pins
Sockets			
Male Blades			
Female Blades			
Rings			
Forks			
Toggle Switch	DPDT	SW	
	DPST		
	SPDT		
	SPST		
	Special		
Valves	Simple	HV	
	Suppression		

Examples:

T67 is a ring terminal connected during installation.

C01-J3 is the J3 connector for a UGM control module.

EC9 is a glow plug supplied with the engine

7.7 ELECTRICAL INSTALLATION

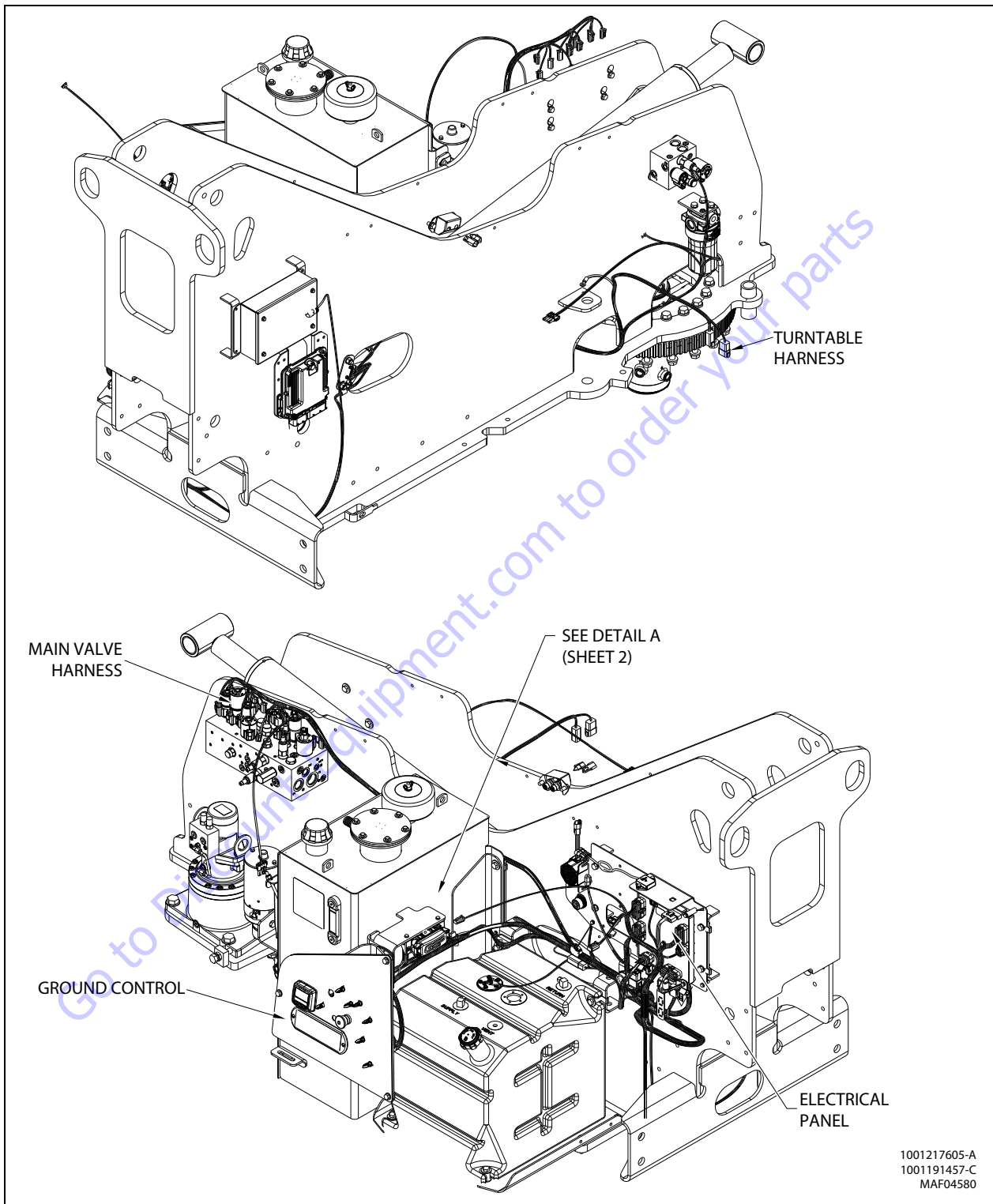


Figure 7-20. Electrical Installation - Sheet 1 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

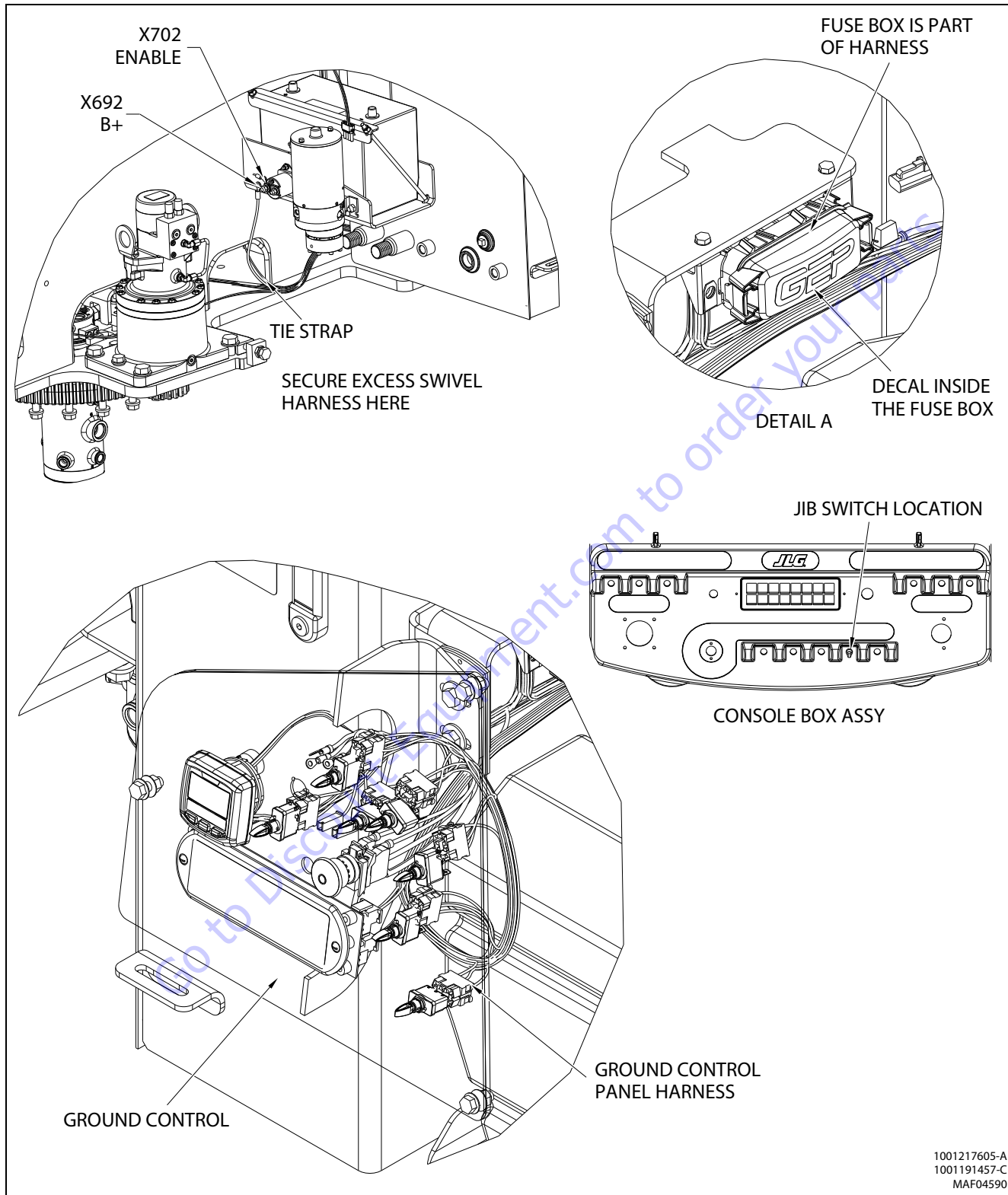


Figure 7-21. Electrical Installation - Sheet 2 of 4

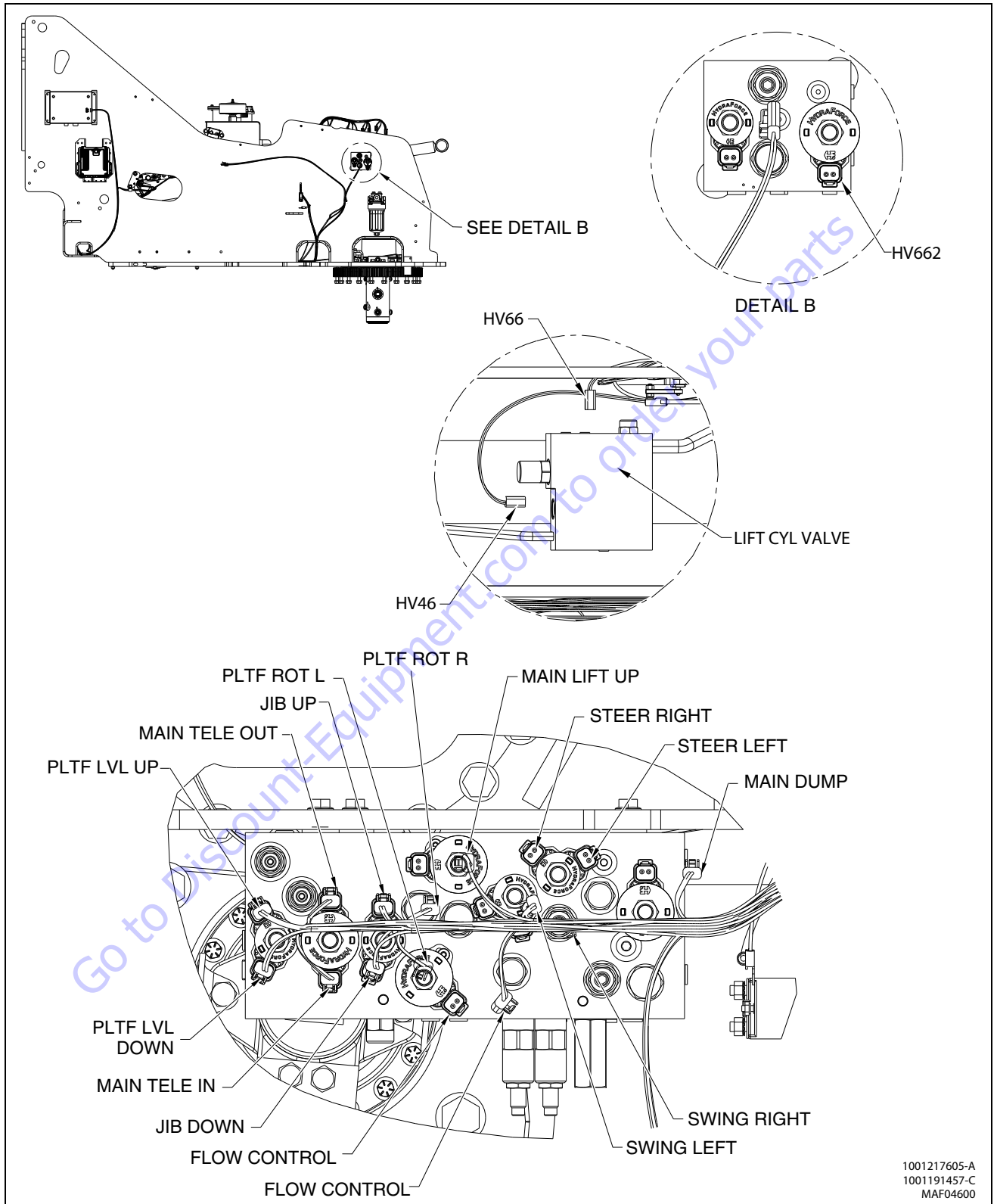


Figure 7-22. Electrical Installation - Sheet 3 of 4

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

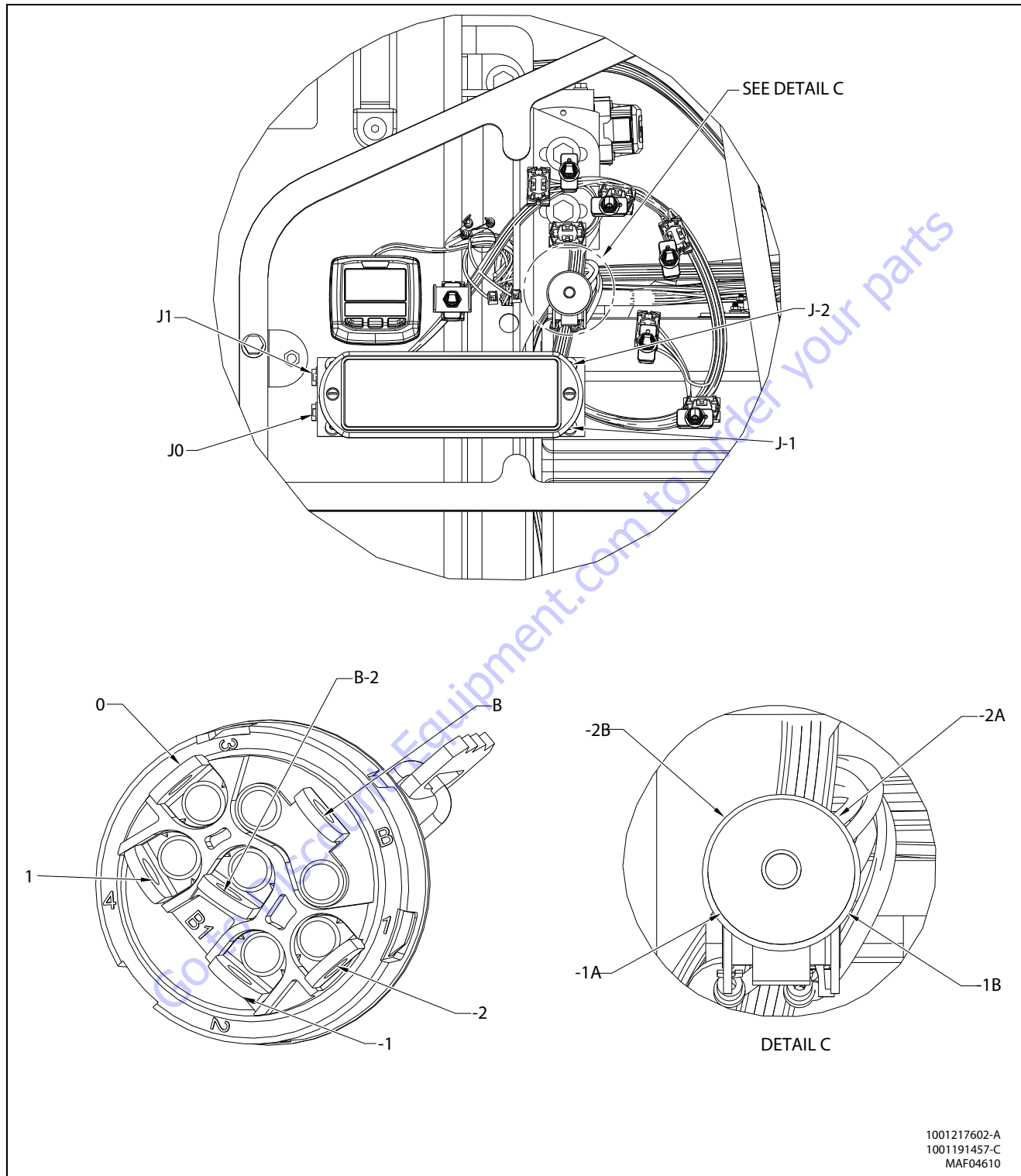
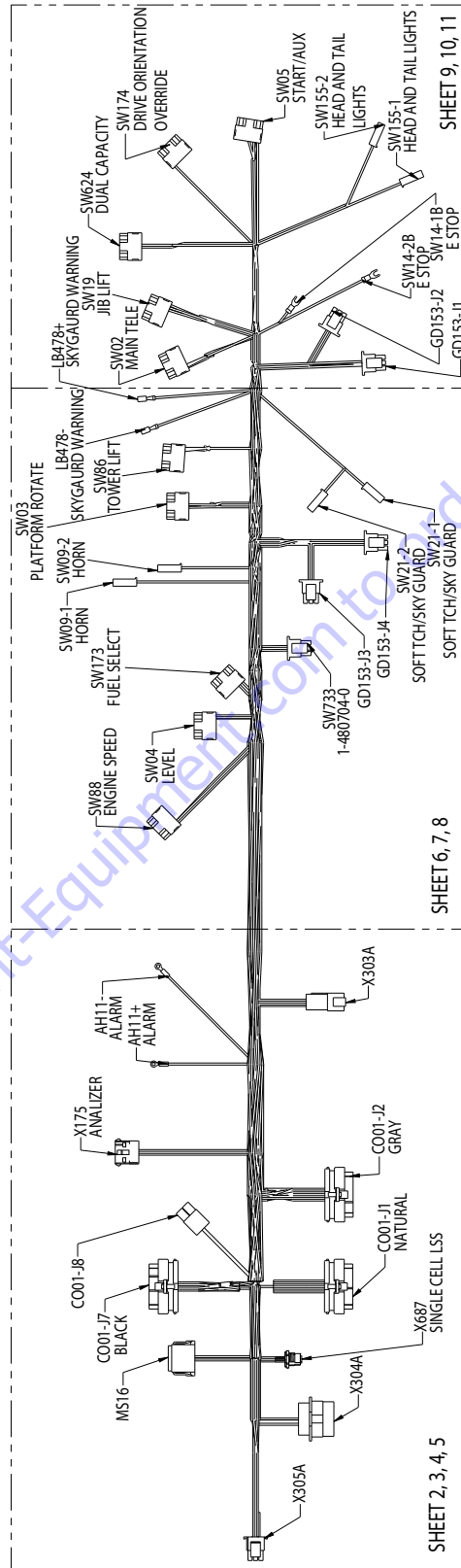


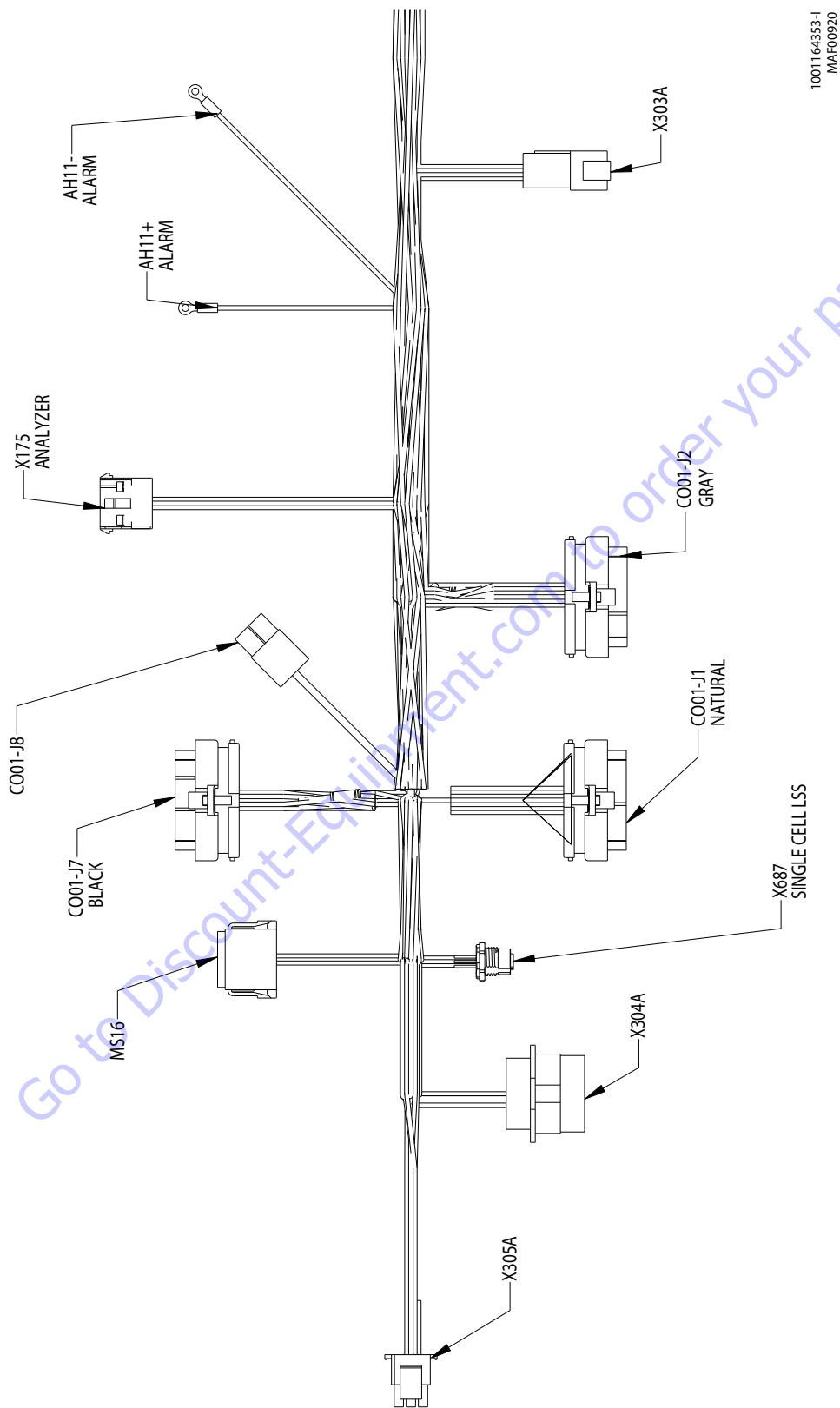
Figure 7-23. Electrical Installation - Sheet 4 of 4

7.8 WIRING HARNESS CONNECTOR LABEL DIAGRAMS



1001164353-I
MAF00910

Figure 7-24. Platform Control Box Harness Without Skyguard - Sheet 1 of 12



1001164353-1
MAF00920

Figure 7-25. Platform Control Box Harness Without Skyguard - Sheet 2 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X305A					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-35 GENERATORSWITCH	18AWG	GXL	C001-J7(9)
2	WHT	1-38 GENONSWITCH	18AWG	GXL	C001-J7(5)
3					
4	WHT	1-39 FOOTSW DISENGAGED	18AWG	GXL	C001-J7(8)
5	WHT	1-40 FOOTSW	18AWG	GXL	C001-J7(4)
6					
7	WHT	1-90SG POWER	18AWG	GXL	C001-J7(7)
8	BLK	1-86 SG GND	18AWG	GXL	C001-J7(24)
9	WHT	1-85 ST POWER	18AWG	GXL	C001-J2(31)
10	WHT	1-87 SG INPUT 1	18AWG	GXL	C001-J7(18)
11	WHT	1-88 SG INPUT 2	18AWG	GXL	C001-J1(23)
12	WHT	1-91 ST SWITCH	18AWG	GXL	C001-J1(20)
13					
14	WHT	1-551	18AWG	GXL	X305A (15)
15	WHT	1-551	18AWG	GXL	X305A (14)

X303A					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-41 PLATFROTATE LEFT	18AWG	GXL	C001-J7(33)
2	WHT	1-42 PLATFROTATE RIGHT	18AWG	GXL	C001-J7(34)
3	WHT	1-36 JIB UP	18AWG	GXL	C001-J7(25)
4	WHT	1-43 JIB DOWN	18AWG	GXL	C001-J7(26)
5	BLK	000-10-11 VALVESGND	18AWG	GXL	C001-J7(23)
6	BLK	000-10-34 OPTIONGND	18AWG	GXL	C001-J7(29)
7	WHT	1-89 OPTION POWER	18AWG	GXL	C001-J2(33)
8	YEL	CAN	20AWG	J1939CABL	MS16(3)
9	GRN	CAN	20AWG	J1939CABL	MS16(6)
10					
11	BLK	000-10-30-2 LSSGND	18AWG	GXL	S688(2)
12	WHT	1-33-2 LSSPWR	18AWG	GXL	S689(2)

X304A					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	GRN	CAN	20AWG	J1939 CABL	MS16(5)
3	YEL	CAN	20AWG	J1939 CABL	MS16(2)
4	WHT	1-44 EMS	18AWG	GXL	C001-J7(3)
5					
6					
7					
8					
9	WHT	1-62 EMSB+	18AWG	GXL	SW14-1B(1B)
10					
11	WHT	1-37 GROUND MODE	18AWG	GXL	C001-J7(1)
12	WHT	1-1	18AWG	GXL	C001-J8(2)
13					
14					
15					
16	BLK	000-10-14 GND	12AWG	GXL	C001-J8(1)
17					
18					
19					

X175 ANALIZER					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-66 POWER	18 AWG	GXL	C001-J2 (26)
2	WHT	1-81 RECEIVE	18 AWG	GXL	C001-J2 (28)
3	WHT	1-82 TRANSMIT	18 AWG	GXL	C001-J2 (29)
4	BLK	000-10-12 GND	18 AWG	GXL	C001-J2 (27)

Figure 7-26. Platform Control Box Harness Without Skyguard - Sheet 3 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

C001-J2 GRAY					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1					
2					
3					
4	WHT	1-67 PLTF ORIENT OVERRIDE	18AWG	GXL	SW174 (1)
5					
6	WHT	1-20 TILT	18AWG	GXL	GD153-J4 (5)
7	WHT	1-32FT SWITCH ENABLE	18AWG	GXL	GD153-J2 (2)
8	WHT	1-25 SYSTEM DISTRESS	18AWG	GXL	GD153-J3 (6)
9	WHT	1-24CREEP	18AWG	GXL	GD153-J2 (1)
10					
11	WHT	1-22 PLATFORM OVERLOAD	18AWG	GXL	GD153-J4 (3)
12	WHT	1-21500#/600# MODE	18AWG	GXL	GD153-J4 (4)
13	WHT	1-271000# MODE	18AWG	GXL	GD153-J3 (4)
14	WHT	1-28DRIVE ORIENT SW	18AWG	GXL	GD153-J3 (3)
15	WHT	1-23GENERATOR ON	18AWG	GXL	GD153-J4 (2)
16	WHT	1-31SOFT TCH/SKY GUARD	18AWG	GXL	LB478+ (1)
17	WHT	1-29 GLOW PLUG	18AWG	GXL	GD153-J4 (6)
18	BLK	000-10-27 GND	18AWG	GXL	GD153-J2 (6)
19					
20	WHT	1-92 DRIVE DISABLE	18AWG	GXL	GD153-J3 (1)
21	WHT	1-30 LOW FUEL	18AWG	GXL	GD153-J2 (3)
22	WHT	1_498 1/4 FUEL	18AWG	GXL	GD153-J1 (1)
23	WHT	1_499 3/4 FUEL	18AWG	GXL	GD153-J1 (3)
24	WHT	1_500 1/2 FUEL	18AWG	GXL	GD153-J1 (2)
25	BLK	1_497FUEL GND	18AWG	GXL	GD153-J1 (4)
26	WHT	1-66 POWER	18AWG	GXL	X175 (1)
27	BLK	000-10-12 GND	18AWG	GXL	X175 (4)
28	WHT	1-81 RECEIVE	18AWG	GXL	X175 (2)
29	WHT	1-82 TRANSMIT	18AWG	GXL	X175 (3)
30					
31	WHT	1-85 ST POWER	18AWG	GXL	X305A (9)
32	WHT	1-33 LSS PWR	18AWG	GXL	S689 (1)
33	WHT	1-89 OPTION POWER	18AWG	GXL	X303A (7)
34					
35	WHT	1_501 FUEL FULL	18AWG	GXL	GD153-J1 (6)

C001-J7 BLACK					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-37GROUND MODE	18AWG	GXL	X304A(11)
2	WHT	1-45 PLATF EMS	18AWG	GXL	SW14-2B (2B)
3	WHT	1-44EMS	18AWG	GXL	X304A(4)
4	WHT	1-40FOOT SW	18AWG	GXL	X305A(5)
5	WHT	1-38GEN ON SWITCH	18AWG	GXL	X305A(2)
6					
7	WHT	1-90SG POWER	18AWG	GXL	X305A(7)
8	WHT	1-39 FOOTSW DISENGAGED	18AWG	GXL	X305A(4)
9	WHT	1-35GENERATOR SWITCH	18AWG	GXL	X305A(1)
10					
11					
12					
13					
14					
15					
16	BLK	000-10-30LSSGND	18AWG	GXL	S688 (1)
17					
18	WHT	1-87SG INPUT1	18AWG	GXL	X305A(10)
19	WHT	1-34PLATALRM	18AWG	GXL	AH11+ (1)
20	WHT	000-10-16PLATALARM GND	18AWG	GXL	AH11- (1)
21					
22					
23	BLK	000-10-11 VALVES GND	18AWG	GXL	X303A(5)
24	BLK	1-86SG GND	18AWG	GXL	X305A(8)
25	WHT	1-36 JIB UP	18AWG	GXL	X303A(3)
26	WHT	1-43 JIB DOWN	18AWG	GXL	X303A(4)
27					
28					
29	BLK	000-10-34OPTION GND	18AWG	GXL	X303A(6)
30	GRN	CAN	20AWGJ	J1939 CABL	MS16(4)
31	YEL	CAN	20AWGJ	J1939 CABL	MS16(1)
32					
33	WHT	1-41PLATF ROTATE LEFT	18AWG	GXL	X303A(1)
34	WHT	1-42PLATF ROTATE RIGHT	18AWG	GXL	X303A(2)
35					

Figure 7-27. Platform Control Box Harness Without Skyguard - Sheet 4 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

C001-J8					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-10-14 GND	12AWG	GXL	X304A (16)
2	WHT	1-1	18AWG	GXL	X304A (12)

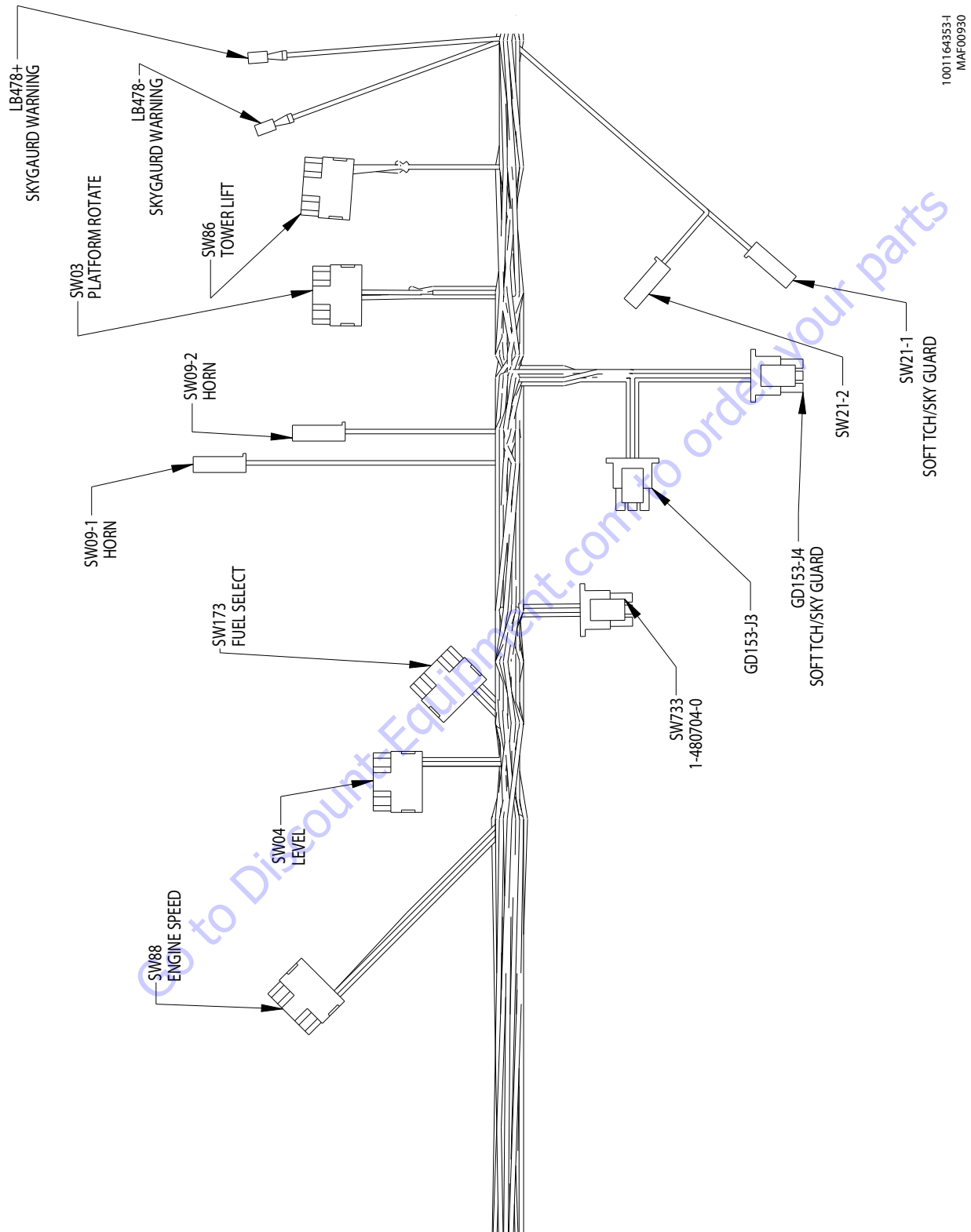
AH11- ALARM					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	000-10-16 PLAT ALARM GND	18 AWG	GXL	C001-J7 (20)

X687					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	LSS PWR	20AWG	CABLE	S689 (2)
3	BLU	LSS GND	20AWG	CABLE	S688 (2)
4	BLK	CAN H1	20AWG	CABLE	MS16 (10)
5	GRY	CAN LO	20AWG	CABLE	MS16 (7)

MS16					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	YEL	CAN	20AWG	J1939 CABLE	C001-J7(31)
2	YEL	CAN	20AWG	J1939 CABLE	X304A (3)
3	YEL	CAN	20AWG	J1939 CABLE	X303 A (8)
4	GRN	CAN	20AWG	J1939 CABLE	C001-J7(30)
5	GRN	CAN	20AWG	J1939 CABLE	X304 A (2)
6	GRN	CAN	20AWG	J1939 CABLE	X303 A (9)
7	GRY	CAN LO	20AWG	CABLE	X687 (5)
8					
9					
10	BLK	CAN HI	20 AWG	CABLE	X687 (4)
11					
12					

AH11+ ALARM					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-34 PLAT ALRM	18AWG	GXL	C001-J7 (19)

Figure 7-28. Platform Control Box Harness Without Skyguard - Sheet 5 of 12



1001164553-1
MAF00930

Figure 7-29. Platform Control Box Harness Without Skyguard - Sheet 6 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

SW88 ENGINE SPEED					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-11 MINSPEED	18AWG	GXL	C001-J1(28)
2	WHT	1-70SWITCHESPWR	18AWG	GXL	C001-J1(18)
2	WHT	1-80 SWITCHESPWR	18AWG	GXL	SW04(2)
3	WHT	1-12 MAXSPEED	18AWG	GXL	C001-J1(27)
4					
5					
6					

SW733 PUMP POT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	1-101 RSII PORT 2	18AWG	GXL	C001-J1(32)
3	WHT	1-102SWITCHESPWR	18AWG	GXL	SW09-2(1)
3	WHT	1-80SWITCHESPWR	18AWG	GXL	SW174(2)
4	WHT	1-105 POTCCW	18AWG	GXL	C001-J1(34)
5	WHT	1-103 POTCW	18AWG	GXL	C001-J1(13)
6	WHT	1-104 POTW	18AWG	GXL	C001-J1(35)

SW04 LEVEL					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	LEVELDOWN	18AWG	GXL	C001-J1(10)
2	WHT	1-73 SWITCHESPWR	18AWG	GXL	SW173(2)
2	WHT	1-80 SWITCHESPWR	18AWG	GXL	SW88(2)
3	WHT	1-8 LEVELUP	18AWG	GXL	C001-J1(9)
4					
5					
6					

SW09-2 HORN					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-102 SWITCHESPWR	18AWG	GXL	SW733(3)
1	WHT	1-87 SWITCHESPWR	18AWG	GXL	SW21-2(1)

GD153-J3					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-92 DRIVEDISABLE	18AWG	GXL	C001-J2(20)
2					
3	WHT	1-28 DRIVEORIENTSW	18AWG	GXL	C001-J2(14)
4	WHT	1-27 1000#MODE	18AWG	GXL	C001-J2(13)
5					
6	WHT	1-25SYSTEMDISTRESS	18AWG	GXL	C001-J2(8)

SW09-1 HORN					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-2 HORN	18AWG	GXL	C001-J1(31)

SW173 FUEL SELECT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	1-73 SWITCHES PWR	18AWG	GXL	SW04(2)
2	WHT	1-74 SWITCHES PWR	18AWG	GXL	SW03(2)
3	WHT	1-68 FUEL SELECT	18AWG	GXL	C001-J1(33)
4					
5					
6					

Figure 7-30. Platform Control Box Harness Without Skyguard - Sheet 7 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

GD153-J4					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1					
2	WHT	1-23 GENERATOR ON	18 AWG	GXL	C001-J2 (15)
3	WHT	1-22 PLATFORM OVERLOAD	18 AWG	GXL	C001-J2 (11)
4	WHT	1-21 500#/600# MODE	18 AWG	GXL	C001-J2 (12)
5	WHT	1-20 TILT	18 AWG	GXL	C001-J2 (6)
6	WHT	1-29 GLOW PLUG	18 AWG	GXL	C001-J2 (17)

SW86 TOWER LIFT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-17TOWER DOWN	18 AWG	GXL	C001-J1 (2)
2	WHT	1-72 SWITCHES PWR	18 AWG	GXL	SW03 (2)
2	WHT	1-78 SWITCHES PWR	18 AWG	GXL	SW19 (2)
3	WHT	1-16 TOWER UP	18 AWG	GXL	C001-J1 (1)
4					
5					
6					

SW03 PLATFORM ROTATE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-7 PLTF ROTATE LEFT	18 AWG	GXL	C001-J1 (8)
2	WHT	1-72 SWITCHES PWR	18 AWG	GXL	SW86 (2)
2	WHT	1-74 SWITCHES PWR	18 AWG	GXL	SW173 (2)
3	WHT	1-6 PLTF ROTATE RIGHT	18 AWG	GXL	C001-J1 (7)
4					
5					
6					

SW21-1 SOFT TCH/SKY GUARD					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-4 SOFT TOUCH	18 AWG	GXL	C001-J1 (29)

LB478- SKYGAURD WARNING					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	BLK	000-10-501 GND	18 AWG	GXL	GD153-J2 (6)

SW21-2 SOFT TCH/SKY GUARD					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-87 SWITCHES PWR	18 AWG	GXL	SW09-2 (1)

LB478+ SKYGAURD WARNING					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	1-31 SOFT TCH/SKY GUARD	18 AWG	GXL	C001-J2 (16)

Figure 7-31. Platform Control Box Harness Without Skyguard - Sheet 8 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

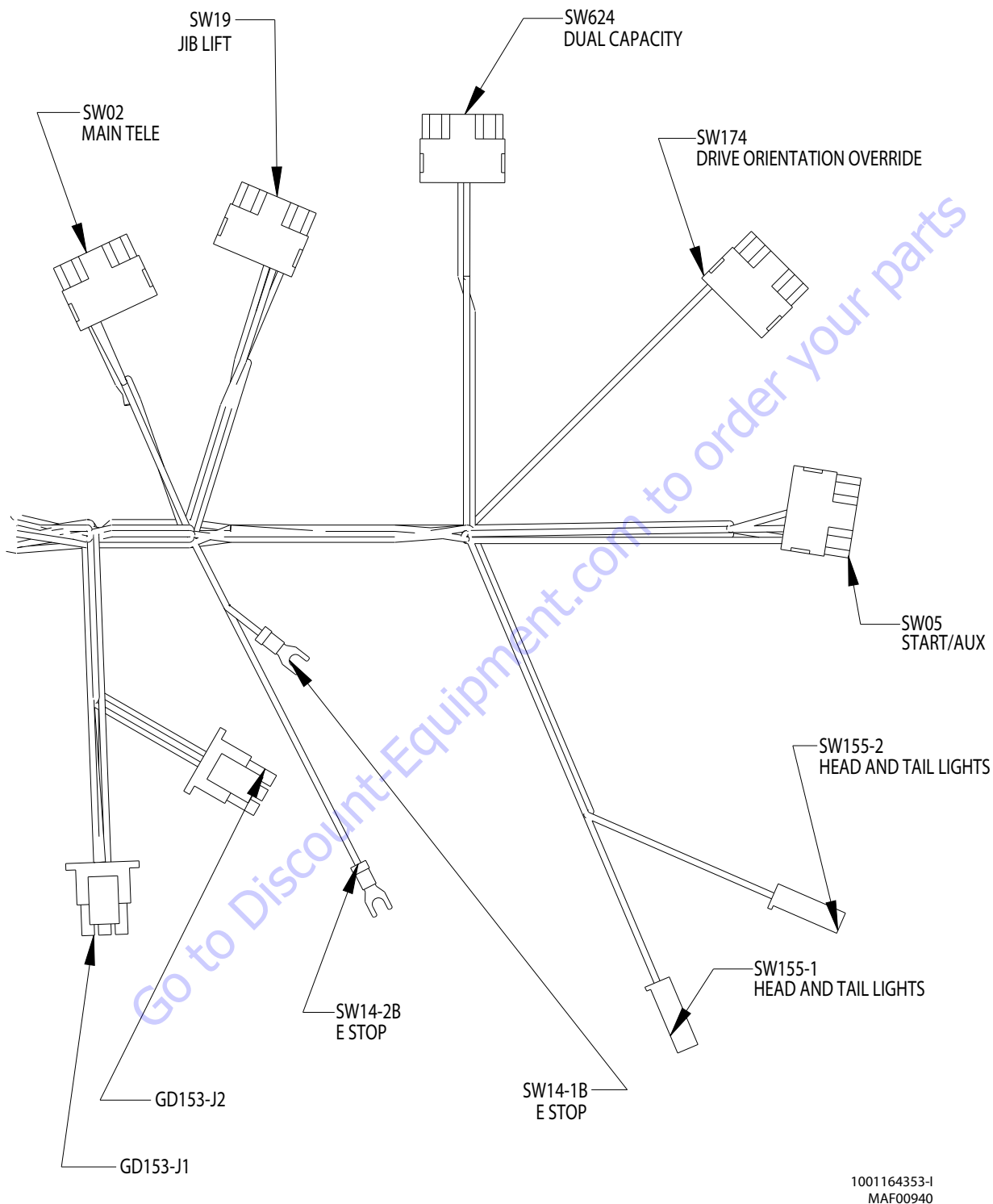


Figure 7-32. Platform Control Box Harness Without Skyguard - Sheet 9 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

GD153-J2					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-24 CREEP	18 AWG	GXL	C001-J2 (9)
2	WHT	1-32 FT SWITCH ENABLE	18 AWG	GXL	C001-J2 (7)
3	WHT	1-30 LOW FUEL	18 AWG	GXL	C001-J2 (21)
4					
5					
6	BLK	000-10-27 GND	18 AWG	GXL	C001-J2 (18)
6	BLK	000-10-501 GND	18 AWG	GXL	LB478- (1)

SW14-1B E STOP					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1B	WHT	1-62 EMS B+	18 AWG	GXL	X304A (9)

SW02 MAIN TELE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-5 TELE OUT	18 AWG	GXL	C001-J1 (6)
2	WHT	1-71 SWITCHES PWR	18 AWG	GXL	SW155-2 (1)
2	WHT	1-76 SWITCHES PWR	18 AWG	GXL	SW19 (2)
3	WHT	1-3 TELE IN	18 AWG	GXL	C001-J1 (5)
4					
5					
6					

GD153-J1					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1_498 1/4 FUEL	18 AWG	GXL	C001-J2 (22)
2	WHT	1_500 1/2 FUEL	18 AWG	GXL	C001-J2 (24)
3	WHT	1_499 3/4 FUEL	18 AWG	GXL	C001-J2 (23)
4	BLK	1_497 FUEL GND	18 AWG	GXL	C001-J2 (25)
5					
6	WHT	1_501 FUEL FULL	18 AWG	GXL	C001-J2 (35)

SW19 JIB LIFT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-14 JIB DOWN	18 AWG	GXL	C001-J1 (12)
2	WHT	1-76 SWITCHES PWR	18 AWG	GXL	SW02 (2)
2	WHT	1-78 SWITCHES PWR	18 AWG	GXL	SW86 (2)
3	WHT	1-13 JIB UP	18 AWG	GXL	C001-J1 (11)
4					
5					
6					

Figure 7-33. Platform Control Box Harness Without Skyguard - Sheet 10 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

SW624 DUAL CAPACITY					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	1-75 SWITCHES PWR	18AWG	GXL	SW174 (2)
2	WHT	1-79 SWITCHES PWR	18AWG	GXL	SW05 (2)
3	WHT	1-50 DUAL CAPACITY	18AWG	GXL	C001-J1 (21)
4					
5					
6					

SW155-2 HEAD AND TAIL LIGHTS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-71 SWITCHES PWR	18AWG	GXL	SW02 (2)
1	WHT	1-77 SWITCHES PWR	18AWG	GXL	SW05 (2)

SW05 START/AUX					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-10 AUX POWER	18AWG	GXL	C001-J1 (15)
2	WHT	1-77 SWITCHES PWR	18AWG	GXL	SW155-2 (1)
2	WHT	1-79 SWITCHES PWR	18AWG	GXL	SW624 (2)
3	WHT	1-9 START SWITCH	18AWG	GXL	C001-J1 (14)
4					
5					
6					

SW174 DRIVE ORIENTATION OVERRIDE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-67 PLTF ORIENT OVERRIDE	18AWG	GXL	C001-J2 (4)
2	WHT	1-75 SWITCHES PWR	18AWG	GXL	SW624 (2)
2	WHT	1-80 SWITCHES PWR	18AWG	GXL	SW733 (3)
3					
4					
5					
6					

SW155-1 HEAD AND TAIL LIGHTS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	1-15 HEAD LIGHTS	18AWG	GXL	C001-J1 (30)

SW14-2B E STOP					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
2B	WHT	1-45 PLATF EMS	18AWG	GXL	C001-J7 (2)

Figure 7-34. Platform Control Box Harness Without Skyguard - Sheet 11 of 12

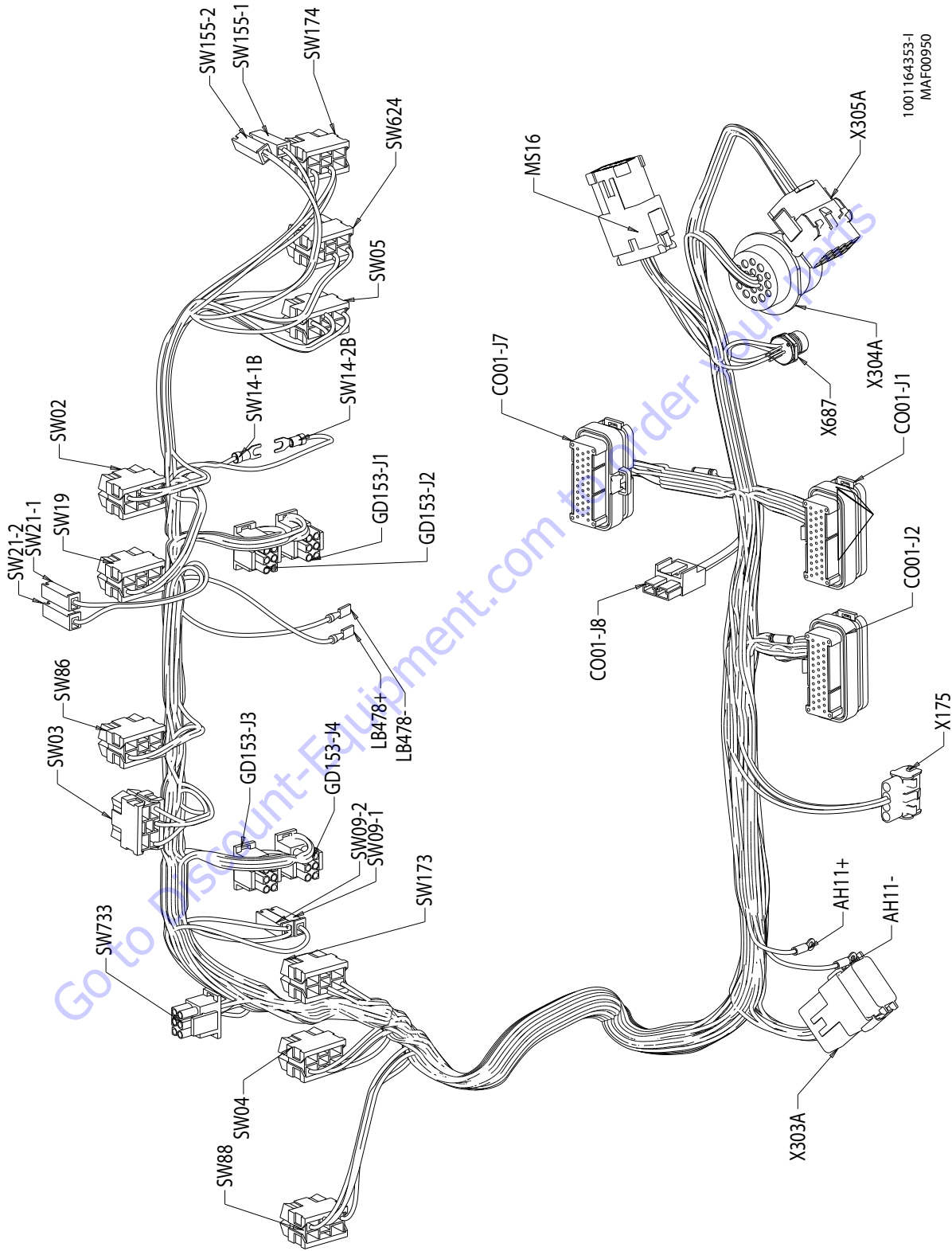
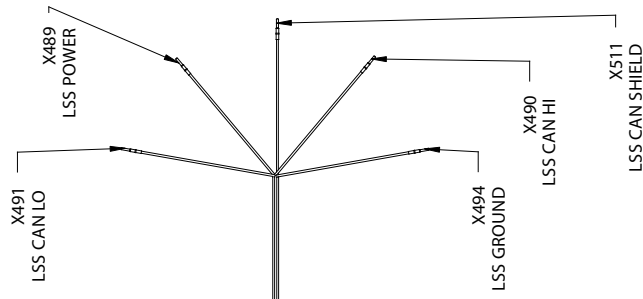


Figure 7-35. Platform Control Box Harness Without Skyguard - Sheet 12 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS



CONNECTOR PART NUMBER: 1001177612						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
2	RED	POWER	22 AWG	GXL		X489 (1)
4	WHT	CAN HI	24 AWG	GXL		X490 (1)
5	BLU	CAN LO	24 AWG	GXL		X491 (1)
3	BLK	V-	22 AWG	GXL		X494 (1)
1	SIR	SHLD	22 AWG	SHLD		X511 (1)

CONNECTOR PART NUMBER: 100116692						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	SIR	SHLD	22 AWG	SHLD		X510 (1)

CONNECTOR PART NUMBER: 100116692						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	POWER	22 AWG	GXL		X510 (2)

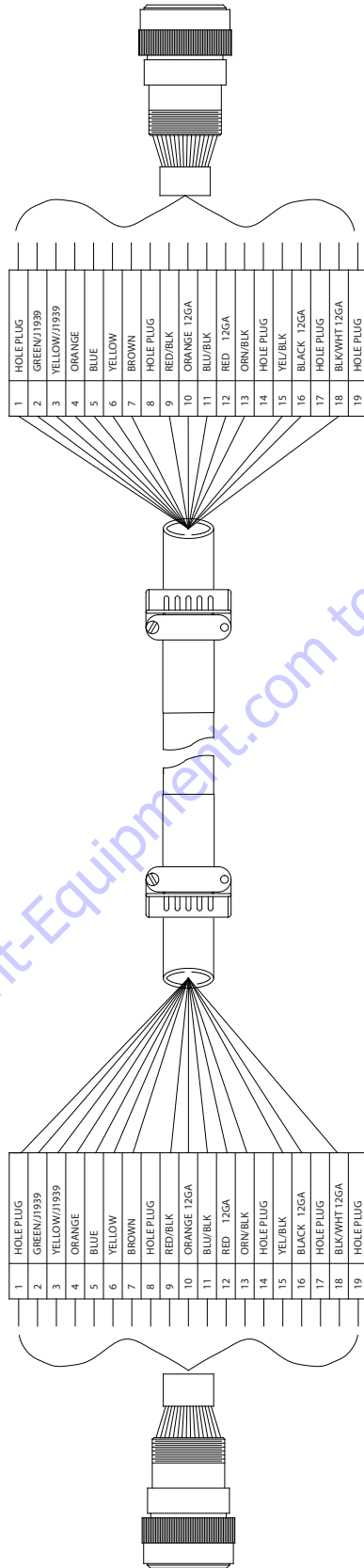
CONNECTOR PART NUMBER: 100116692						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	V-	22 AWG	GXL		X510 (3)

CONNECTOR PART NUMBER: 100116692						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLU	CAN LO	24 AWG	GXL		X510 (5)

CONNECTOR PART NUMBER: 100116692						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	CAN HI	24 AWG	GXL		X510 (4)

MAE18520D

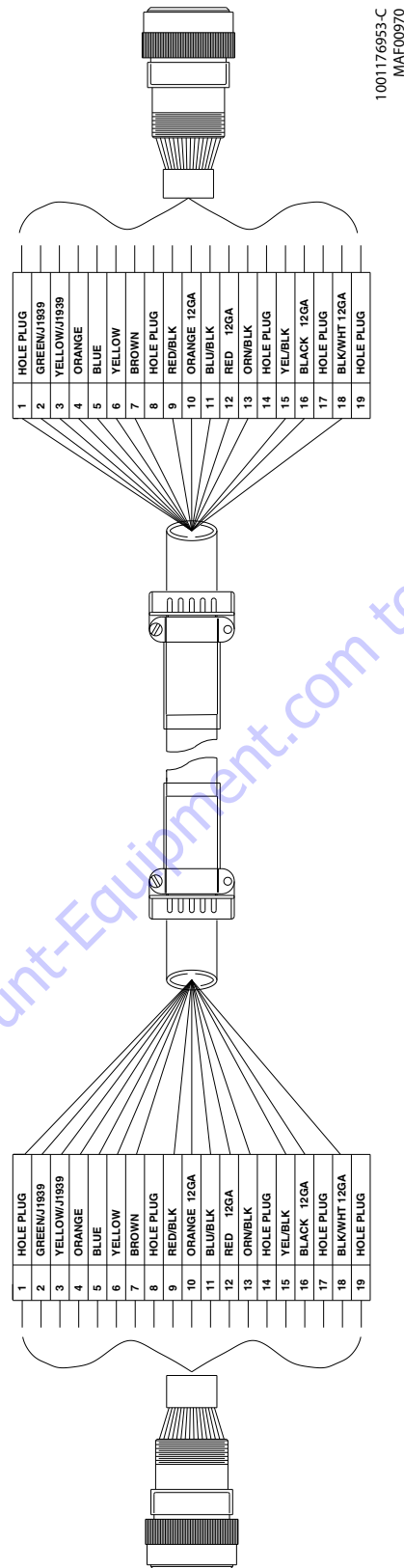
Figure 7-36. LSS Harness



MAE18530C

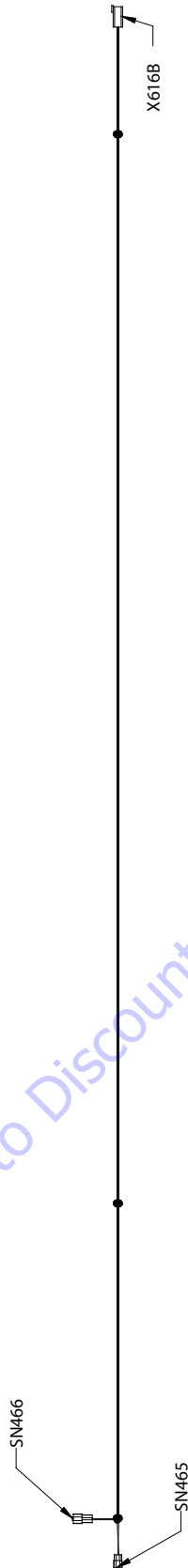
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Figure 7-37. Main Boom Harness - 4005C



1001176953-C
MAF00970

Figure 7-38. Main Boom with Jib Harness - 460SJC



CONNECTOR PART NUMBER: 4460899						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	ORN/BLK	CABLE CABLE	18 AWG	TFFN	4460464	SN465 (1)
2	BLK/RED	CABLE CABLE	18 AWG	TFFN	4460464	SN465 (3)
3	BLU/RED	CABLE CABLE	18 AWG	TFFN	4460464	SN465 (2)
4	YEL/BLK	CABLE CABLE	18 AWG	TFFN	4460464	SN466 (1)
5	BRN/BLK	CABLE CABLE	18 AWG	TFFN	4460464	SN466 (3)
6	BLU/BLK	CABLE CABLE	18 AWG	TFFN	4460464	SN466 (2)

CONNECTOR PART NUMBER: 4460336						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL/BLK	CABLE CABLE	18 AWG	TFFN	4460464	X616B (4)
2	BLU/BLK	CABLE CABLE	18 AWG	TFFN	4460464	X616B (6)
3	BRN/BLK	CABLE CABLE	18 AWG	TFFN	4460464	X616B (5)

CONNECTOR PART NUMBER: 4460239						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	ORN/BLK	CABLE CABLE	18 AWG	TFFN	4460465	X616B (1)
2	BLU/RED	CABLE CABLE	18 AWG	TFFN	4460465	X616B (3)
3	BLK/RED	CABLE CABLE	18 AWG	TFFN	4460465	X616B (2)

10017388 C

Figure 7-39. Tele In Proximity Switches Harness

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

CONNECTOR PART NUMBER: 4460530									
CONN POS	WIRE COLOR	WIRE LABEL	GALUGE	JACKET	TERMINAL P/N	TO			
1	ORN/BLK	CABLE	18 AWG	TFN	4460465	SN467 (1)			
2	BLK/RED	CABLE	18 AWG	TFN	4460465	SN467 (3)			
3	BLU/RED	CABLE	18 AWG	TFN	4460465	SN467 (2)			
4	YEL/BLK	CABLE	18 AWG	TFN	4460465	SN571 (1)			
5	BRN/BLK	CABLE	18 AWG	TFN	4460465	SN571 (3)			
6	BLU/BLK	CABLE	18 AWG	TFN	4460465	SN571 (2)			
7					4460466				
8					4460466				

CONNECTOR PART NUMBER: 4460536									
CONN POS	WIRE COLOR	WIRE LABEL	GALUGE	JACKET	TERMINAL P/N	TO			
1	YEL/BLK	CABLE	18 AWG	TFN	4460464	X615B(4)			
2	BLU/BLK	CABLE	18 AWG	TFN	4460464	X615B(6)			
3	BRN/BLK	CABLE	18 AWG	TFN	4460464	X615B(5)			

CONNECTOR PART NUMBER: 4460539									
CONN POS	WIRE COLOR	WIRE LABEL	GALUGE	JACKET	TERMINAL P/N	TO			
1	ORN/BLK	CABLE	18 AWG	TFN	4460465	X615B (1)			
2	BLU/RED	CABLE	18 AWG	TFN	4460465	X615B (3)			
3	BLK/RED	CABLE	18 AWG	TFN	4460465	X615B (2)			



100113807 C

Figure 7-40. Capacity Proximity Switches Harness

XC069-J4					
CONN. POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-23 CRIBBING ENABLED	18 AWG	GXL	GD486-J3 (1)
2	WHT	5-35 SYSTEM FAULT	18 AWG	GXL	GD486-J4 (5)
3	WHT	5-24 SLOW PLUG	18 AWG	GXL	GD486-J2 (3)
4	WHT	5-9 IGNITION START	18 AWG	GXL	SW143 (1)
5	WHT	5-8 LEVEL DOWN	18 AWG	GXL	SW142 (3)
6	WHT	5-4 ROTATE LEFT	18 AWG	GXL	SW140 (3)
7	WHT	5-1 TELE IN	18 AWG	GXL	SW141 (3)
8	WHT	5-11 JIB DOWN	18 AWG	GXL	SW144 (3)
9					
10					
11					
12					
13	WHT	5-36 LO LIVL FUEL	18 AWG	GXL	GD486-J1 (5)
14	WHT	5-25 PLATFORM OVERLOAD	18 AWG	GXL	GD486-J3 (6)
15					
16	WHT	5-8 AUX POWER	18 AWG	GXL	SW143 (3)
17	WHT	5-5 LEVEL UP	18 AWG	GXL	SW142 (1)
18	WHT	5-3 ROTATE RIGHT	18 AWG	GXL	SW140 (1)
19	WHT	5-10 JIB UP	18 AWG	GXL	SW144 (1)
20					
21					
22					
23	WHT	5-12 MAIN LIFT UP	18 AWG	GXL	SW145 (1)
24					
25	WHT	5-26 SWITCH POWER	18 AWG	GXL	SW141 (2)
26	WHT	5-22 NO CHARGE	18 AWG	GXL	GD486-J4 (1)
27					
28	WHT	5-21 ENGINE HIGH TEMP	18 AWG	GXL	GD486-J4 (3)
29	WHT	5-20 ENGINE LOW OIL PRES	18 AWG	GXL	GD486-J4 (2)
30	WHT	5-2 TELE OUT	18 AWG	GXL	SW141 (1)
31	BLK	000-50-1 GND	18 AWG	GXL	GD486-J2 (6)
32	BLK	000-50-2 GND	18 AWG	GXL	GD486-J1 (4)
33	WHT	5-13 MAIN LIFT DOWN	18 AWG	GXL	SW145 (3)
34	WHT	5-15 SWING LEFT	18 AWG	GXL	SW146 (3)
35	WHT	5-14 SWING RIGHT	18 AWG	GXL	SW146 (1)

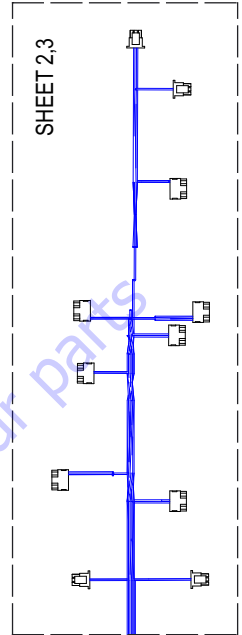


Figure 7-41. Ground Control Panel Harness - Sheet 1 of 5

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

SW140					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-3 ROTATE RIGHT	18 AWG	GXL	XCO69-J4 (18)
2	WHT	5-27	18 AWG	GXL	SW141 (2)
2	WHT	5-28	18 AWG	GXL	SW142 (2)
3	WHT	5-4 ROTATE LEFT	18 AWG	GXL	XCO69-J4 (6)
4					
5					
6					

SW141					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-2 TELE OUT	18 AWG	GXL	XCO69-J4 (30)
2	WHT	5-26 SWITCH POWER	18 AWG	GXL	XCO69-J4 (25)
2	WHT	5-27	18 AWG	GXL	SW140 (2)
3	WHT	5-1 TELE IN	18 AWG	GXL	XCO69-J4 (7)
4					
5					
6					

SW144					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-10 JIB UP	18 AWG	GXL	XCO69-J4 (19)
2	WHT	5-30	18 AWG	GXL	SW143 (2)
2	WHT	5-31	18 AWG	GXL	SW145 (2)
3	WHT	5-11 JIB DOWN	18 AWG	GXL	XCO69-J4 (8)
4					
5					
6					

SW145					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-12 MAIN LIFT UP	18 AWG	GXL	XCO69-J4 (23)
2	WHT	5-31	18 AWG	GXL	SW144 (2)
2	WHT	5-32	18 AWG	GXL	SW146 (2)
3	WHT	5-13 MAIN LIFT DOWN	18 AWG	GXL	XCO69-J4 (33)
4					
5					
6					

SW142					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-5 LEVEL UP	18 AWG	GXL	XCO69-J4 (17)
2	WHT	5-28	18 AWG	GXL	SW140 (2)
2	WHT	5-29	18 AWG	GXL	SW143 (2)
3	WHT	5-6 LEVEL DOWN	18 AWG	GXL	XCO69-J4 (5)
4					
5					
6					

SW143					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-9 IGNITION START	18 AWG	GXL	XCO69-J4 (4)
2	WHT	5-29	18 AWG	GXL	SW142 (2)
2	WHT	5-30	18 AWG	GXL	SW144 (2)
3	WHT	5-8 AUX POWER	18 AWG	GXL	XCO69-J4 (16)
4					
5					
6					

SW146					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-14 SWING RIGHT	18 AWG	GXL	XCO69-J4 (35)
2	WHT	5-32	18 AWG	GXL	SW145 (2)
3	WHT	5-15 SWING LEFT	18 AWG	GXL	XCO69-J4 (34)
4					
5					
6					

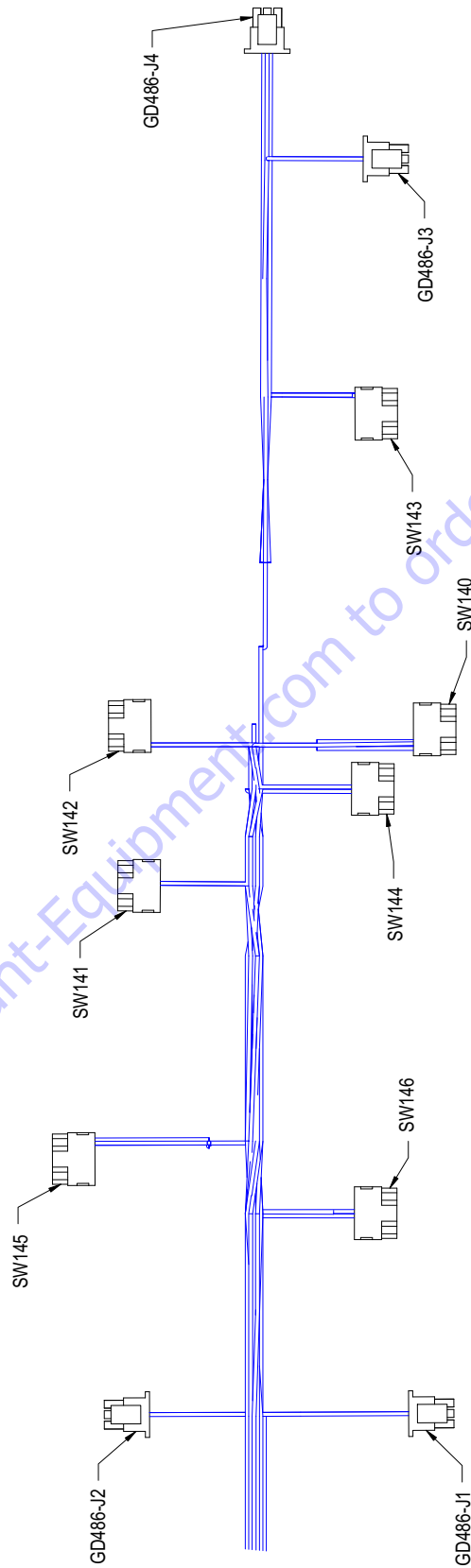
GD486-J1					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2					
3					
4	BLK	000-50-2 GND	18 AWG	GXL	XCO69-J4 (32)
5	WHT	5-36 LO LVL FUEL	18 AWG	GXL	XCO69-J4 (13)
6					

GD486-J2					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2					
3	WHT	5-24 GLOW PLUG	18 AWG	GXL	XCO69-J4 (3)
4					
5					
6	BLK	000-50-1 GND	18 AWG	GXL	XCO69-J4 (31)

GD486-J3					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-23 CRIBBING ENABLED	18 AWG	GXL	XCO69-J4 (1)
2					
3					
4					
5					
6	WHT	5-25PLATFORM OVERLOAD	18 AWG	GXL	XCO69-J4 (14)

GD486-J4					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	5-22 NO CHARGE	18 AWG	GXL	XCO69-J4 (26)
2	WHT	5-20 ENGINE LOW OIL PRES	18 AWG	GXL	XCO69-J4 (29)
3	WHT	5-21 ENGINE HIGH TEMP	18 AWG	GXL	XCO69-J4 (28)
4					
5	WHT	5-35 SYSTEM FAULT	18 AWG	GXL	XCO69-J4 (2)
6					

Figure 7-42. Ground Control Panel Harness - Sheet 2 of 5



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Figure 7-43. Ground Control Panel Harness - Sheet 3 of 5

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM		TO	
					REFERENCE	PIN	REFERENCE	PIN
000-50-1 GND	BLK	18	GXL	1730	XCO69-J4	31	GD486-J2	6
000-50-2 GND	BLK	18	GXL	1751	XCO69-J4	32	GD486-J1	4
5-10 JIB UP	WHT	18	GXL	2121	XCO69-J4	19	SW144	1
5-11 JIB DOWN	WHT	18	GXL	2101	XCO69-J4	8	SW144	3
5-12 MAIN LIFT UP	WHT	18	GXL	1906	XCO69-J4	23	SW145	1
5-13 MAIN LIFT DOWN	WHT	18	GXL	1904	XCO69-J4	33	SW145	3
5-14 SWING RIGHT	WHT	18	GXL	1835	XCO69-J4	35	SW146	1
5-15 SWING LEFT	WHT	18	GXL	1850	XCO69-J4	34	SW146	3
5-1 TELE IN	WHT	18	GXL	2057	XCO69-J4	7		
5-20 ENGINE LOW OIL PRES	WHT	18	GXL	2424	XCO69-J4	29	GD486-J4	2
5-21 ENGINE HIGH TEMP	WHT	18	GXL	2445	XCO69-J4	28	GD486-J4	3
5-22 NO CHARGE	WHT	18	GXL	2445	XCO69-J4	26	GD486-J4	1
5-23 CRIBBING ENABLED	WHT	18	GXL	2434	XCO69-J4	1	GD486-J3	1
5-24 GLOW PLUG	WHT	18	GXL	1720	XCO69-J4	3	GD486-J2	3
5-25 PLATFORM OVERLOAD	WHT	18	GXL	2440	XCO69-J4	14	GD486-J3	6
5-26 SWITCH POWER	WHT	18	GXL	2053	XCO69-J4	25	SW141	2
5-27	WHT	18	GXL	407	SW141	2	SW140	2
5-28	WHT	18	GXL	159	SW140	2	SW142	2
5-29	WHT	18	GXL	210	SW142	2	SW143	2
5-2 TELE OUT	WHT	18	GXL	2000	XCO69-J4	30		
5-30	WHT	18	GXL	288	SW143	2	SW144	2
5-31	WHT	18	GXL	342	SW144	2	SW145	2
5-32	WHT	18	GXL	178	SW145	2	SW146	2
5-35 SYSTEM FAULT	WHT	18	GXL	2435	XCO69-J4	2	GD486-J4	5
5-36 LO LVL FUEL	WHT	18	GXL	1754	XCO69-J4	13	GD486-J1	5
5-3 ROTATE RIGHT	WHT	18	GXL	2146	XCO69-J4	18	SW140	1
5-4 ROTATE LEFT	WHT	18	GXL	2126	XCO69-J4	6	SW140	3
5-5 LEVEL UP	WHT	18	GXL	2140	XCO69-J4	17	SW142	1
5-6 LEVEL DOWN	WHT	18	GXL	2142	XCO69-J4	5	SW142	3
5-8 AUX POWER	WHT	18	GXL	2278	XCO69-J4	16	SW143	3
5-9 IGNITION START	WHT	18	GXL	2271	XCO69-J4	4	SW143	1

Figure 7-44. Ground Control Panel Harness - Sheet 4 of 5

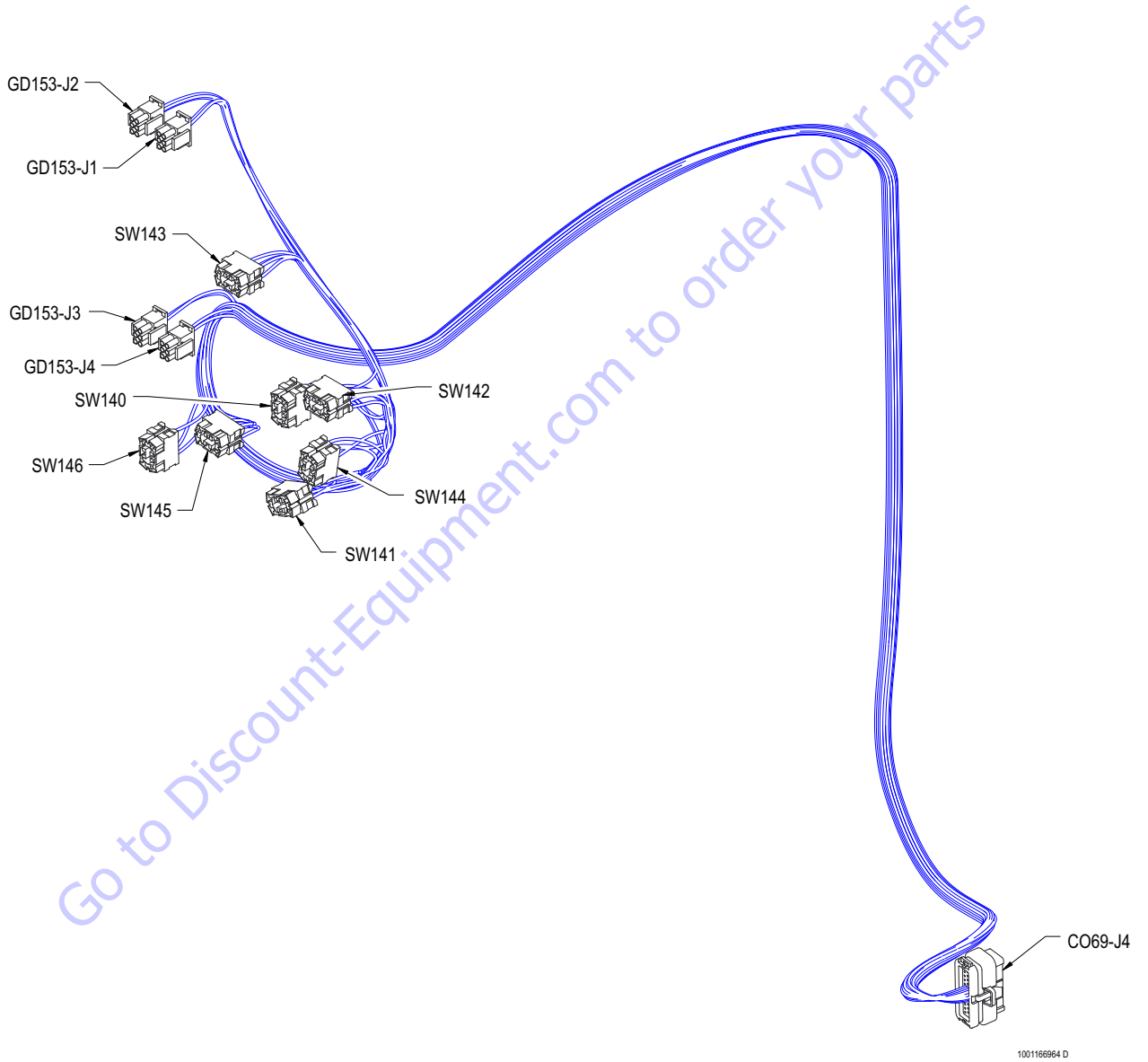


Figure 7-45. Ground Control Panel Harness - Sheet 5 of 5

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X206					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-6-1 GROUND	16 AWG	TFFN	X238 (2)
2	BLK	000-6-3	18 AWG	GXL	X239 (B)
3					
4					
5					
6					
7					
8					
9					
10	WHT	6-23	18 AWG	GXL	X239 (L)
11	WHT	6-23	18 AWG	GXL	X239 (K)
12	RED	CABLE	18 AWG	CABLE	S484 (2)
13	BLK	CABLE CAN LO	18 AWG	CABLE	S483 (2)
14	WHT	6-15 DIAGNOSTIC	18 AWG	GXL	S240 (2)
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

X238					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	BLK	000-6-1 GROUND	16 AWG	TFFN	X206 (1)
3					
4	WHT	6-18 GLOW	18 AWG	GXL	RL234-86 (1)
5					
6					
7					
8					

X481					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
A	RED	CABLE	18 AWG	CABLE	S484 (1)
B	BLK	CABLE	18 AWG	CABLE	S483 (2)
C	SHIELD	6-50	18 AWG	SHLD	X237 (6)

S484					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	RED	CABLE CAN HI	18 AWG	CABLE	X237 (3)
1	RED	CABLE	18 AWG	CABLE	X481 (A)
2	RED	CABLE	18 AWG	CABLE	X206 (12)

X239					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
A	WHT	6-17 DIAGNOSTIC	18 AWG	GXL	S240 (2)
B	BLK	000-6-3	18 AWG	GXL	X206 (2)
K	WHT	6-23	18 AWG	GXL	X206 (11)
L	WHT	6-23	18 AWG	GXL	X206 (10)

S240					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-16	18 AWG	GXL	X237 (1)
2	WHT	6-15 DIAGNOSTIC	18 AWG	GXL	X206 (14)
2	WHT	6-17 DIAGNOSTIC	18 AWG	GXL	X239 (A)

RL267-86					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-25	14 AWG	GXL	X237 (2)

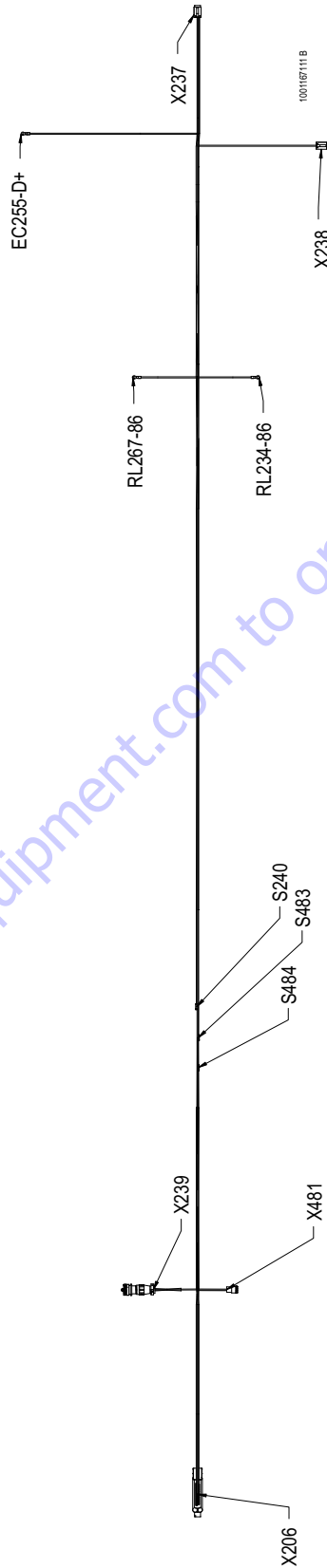
S483					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	CABLE CAN LO	18 AWG	CABLE	X237 (4)
2	BLK	CABLE	18 AWG	CABLE	X481 (B)
2	BLK	CABLE CAN LO	18 AWG	CABLE	X206 (13)

RL234-86					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-18 GLOW	18 AWG	GXL	X238 (4)

X237					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-16	18 AWG	GXL	S240 (1)
2	WHT	6-25	14 AWG	GXL	RL267-86 (1)
3	RED	CABLE CAN HI	18 AWG	CABLE	S484 (1)
4	BLK	CABLE CAN LO	18 AWG	CABLE	S483 (1)
5	RED	6-51 16AWG	16 AWG	GXL	EC255-D+ (1) ***
6	SHIELD	6-50	18 AWG	SHLD	X481 (C)

EC255-D+					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	RED	6-51 16AWG	16 AWG	GXL	X237 (5)

Figure 7-46. Deutz T4i Harness - Sheet 1 of 4



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Figure 7-47. Deutz T4i Harness - Sheet 2 of 4

WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM		TO	
					REFERENCE	PIN	REFERENCE	PIN
000-6-1	BLK	16	TFFN	3809	X238	2	X206	1
000-6-3	BLK	18	GXL	582	X239	B	X206	2
6-15	WHT	18	GXL	1267	X206	14	S240	2
6-16	WHT	18	GXL	2574	S240	1	X237	1
6-17	WHT	18	GXL	846	S240	2	X239	A
6-18	WHT	18	GXL	1054	X238	4	RL234-86	1
6-23	WHT	18	GXL	588	X239	K	X206	11
6-23	WHT	18	GXL	584	X239	L	X206	10
6-25	WHT	14	GXL	1091	X237	2	RL267-86	1
6-50	SHIELD	18	SHLD	3389	X237	6	X481	C
6-51	RED	16	GXL	739	X237	5	EC255-D+	1
CABLE CAN LO	BLK	18	CABLE	2661	X237	4	S483	1
CABLE CAN HI	RED	18	CABLE	2739	X237	3	S484	1
CABLE	RED	18	CABLE	662	S484	1	X481	A
CABLE	BLK	18	CABLE	728	X481	B	S483	2
CABLE	RED	18	CABLE	1110	S484	2	X206	12
CABLE CAN LO	BLK	18	CABLE	1189	X206	13	S483	2

Figure 7-48. Deutz T4i Harness - Sheet 3 of 4

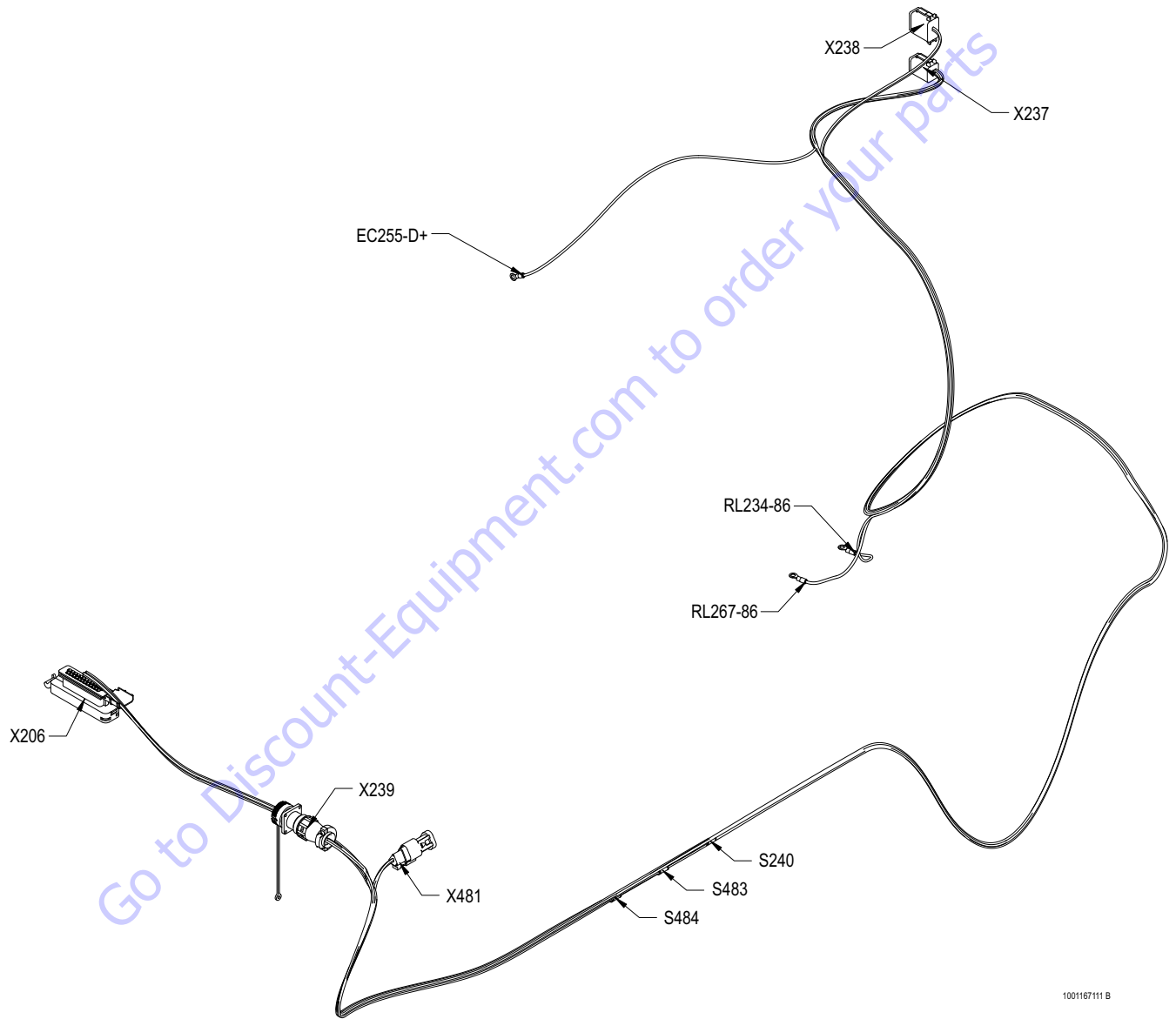


Figure 7-49. Deutz T4i Harness - Sheet 4 of 4

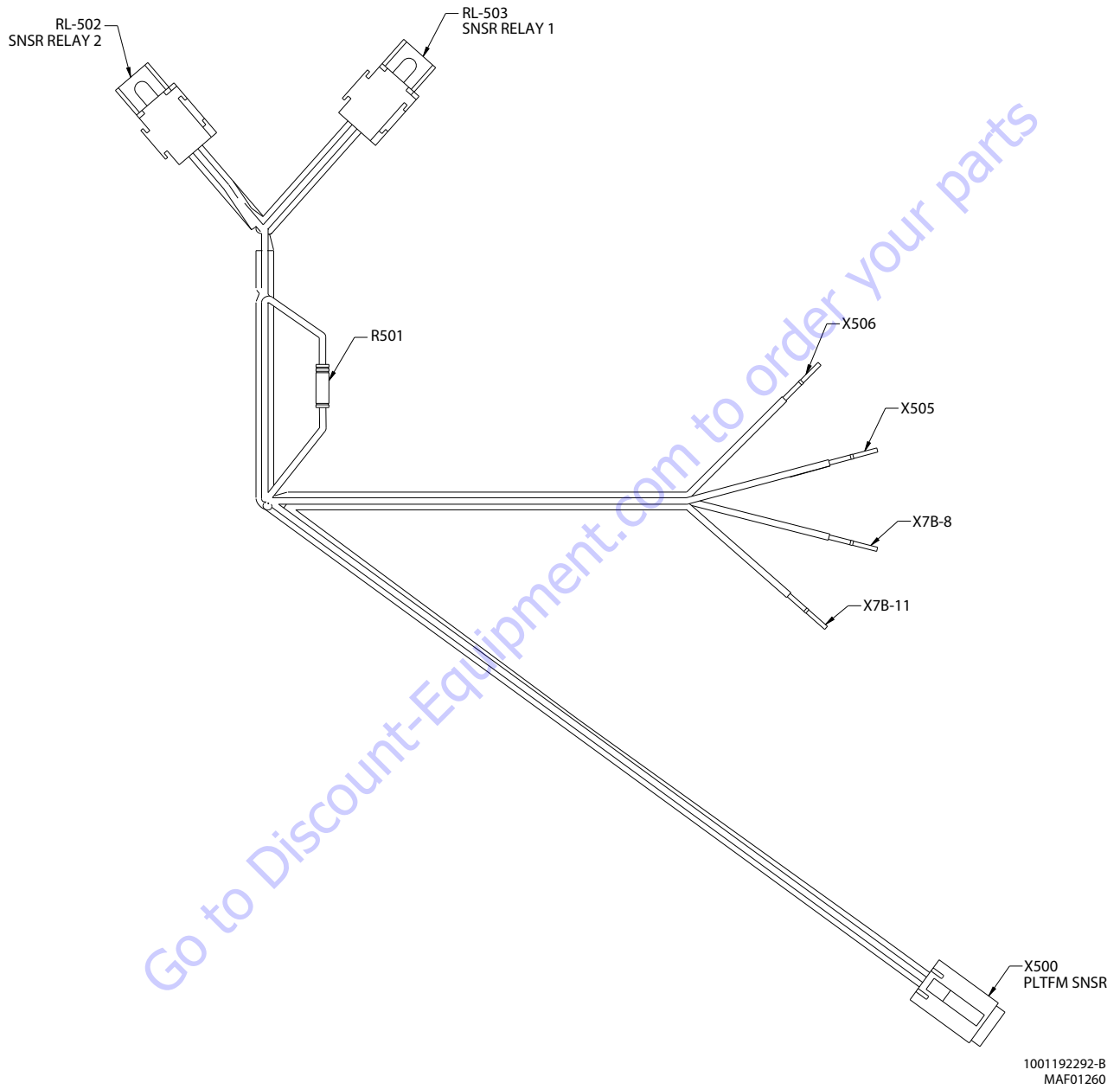


Figure 7-50. Skyguard Harness - Sheet 1 of 2

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

RL-503 - SNSR RELAY 1					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
30	WHT	P9	18AWG	GXL	X505 (1)
30	WHT	P9-1	18AWG	GXL	RL-502 (30)
85	WHT	P5-1	18AWG	GXL	RL-502 (85)
86	WHT	P4-1	18AWG	GXL	RL-502 (86)
87	WHT	P1	18AWG	GXL	X506 (1)
87a					

X505					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P2	18AWG	GXL	R501 (1)
1	WHT	P9	18AWG	GXL	RL-503 (30)

R501					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P2	18AWG	GXL	X505 (1)
2	WHT	P10	18AWG	GXL	X500 (1)

X7B-8					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P6	18AWG	GXL	X500 (2)

RL-502 - SNSR RELAY 2					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
30	WHT	P9-1	18AWG	GXL	RL-503 (30)
85	WHT	P5	18AWG	GXL	X500 (4)
85	WHT	P5-1	18AWG	GXL	RL-503 (85)
86	WHT	P4	18AWG	GXL	X500 (3)
86	WHT	P4-1	18AWG	GXL	RL-503 (86)
87	WHT	P3	18AWG	GXL	X7B-11 (1)
87a					

X7B-11					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P3	18AWG	GXL	RL-502 (87)

X500 - PLTFM SNSR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P10	18AWG	GXL	R501 (2)
2	WHT	P6	18AWG	GXL	X7B-8 (1)
3	WHT	P4	18AWG	GXL	RL-502 (86)
4	WHT	P5	18AWG	GXL	RL-502 (85)

X506					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	T0
1	WHT	P1	18AWG	GXL	RL-503 (87)

Figure 7-51. Skyguard Harness - Sheet 2 of 2

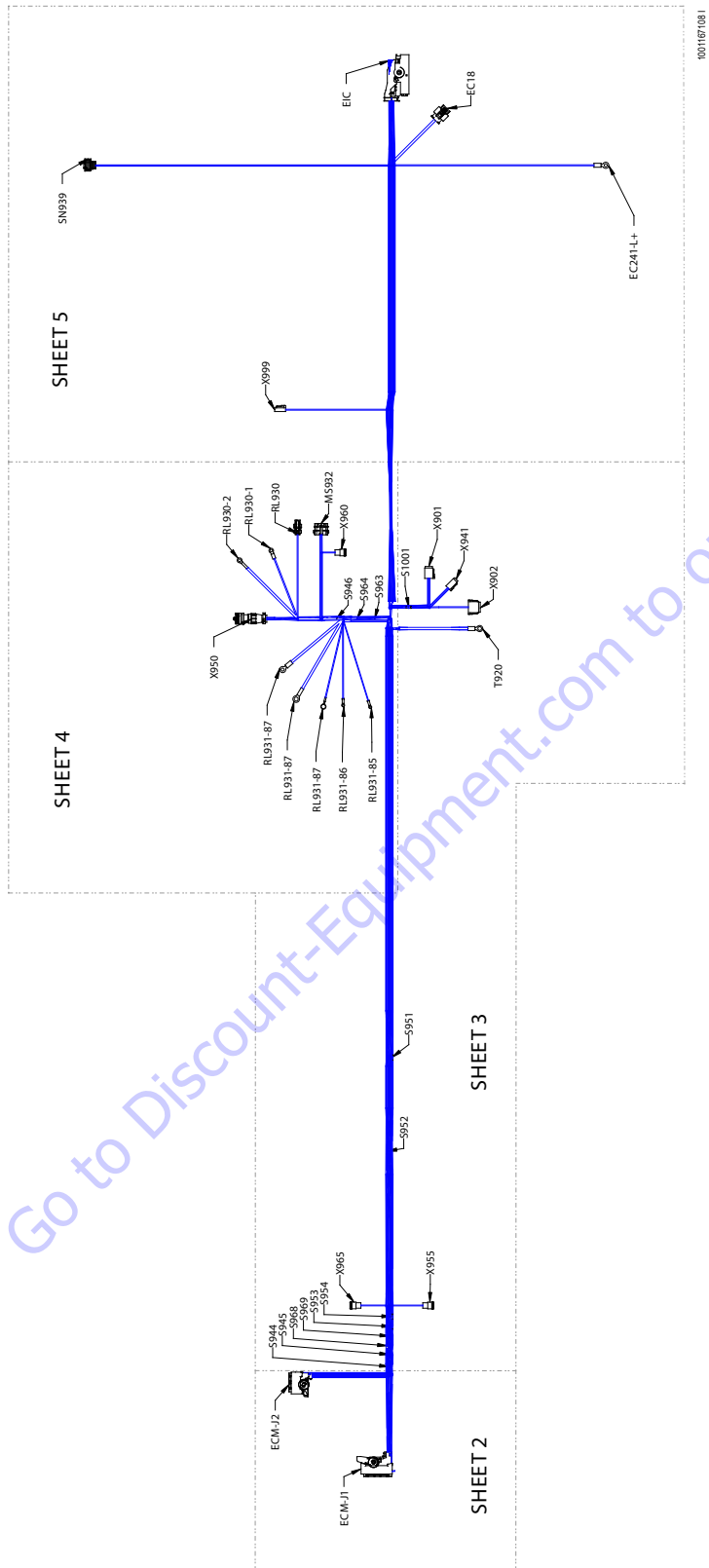


Figure 7-52. Deutz T4F Harness - Sheet 1 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

CONNECTOR PART NUMBER: 1001133956 ECM-J1						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	148-1 ECM PWR	2.5mm ²	FLRYW	1001126352	5944 (2)
2	BLK	148-2 ECM GND	2.5mm ²	FLRYW	1001126352	5945 (2)
3	RED	148-3 ECM PWR	2.5mm ²	FLRYW	1001126352	5944 (2)
4	BLK	148-4 ECM GND	2.5mm ²	FLRYW	1001126352	5945 (2)
5	RED	148-5 ECM PWR	2.5mm ²	FLRYW	1001126352	5944 (2)
6	BLK	148-6 ECM GND	2.5mm ²	FLRYW	1001126352	5945 (2)
7					1001126357	
8					1001126356	
9					1001126356	
10					1001126356	
11					1001126356	
12					1001126356	
13	BLK	148-13 COOLANT LEVEL SIG	0.75mm ²	FLRYW	1001126384	SN939 (3)
14					1001126356	
15	BLK	148-15-68 CLUTCH SWITCH	0.75mm ²	FLRYW	1001126384	ECM-J1 (68)
16					1001126356	
17					1001126356	
18					1001126356	
19					1001126356	
20					1001126356	
21					1001126356	
22					1001126356	
23					1001126356	
24					1001126356	
25					1001126356	
26	BLK	148-26 FUEL PUMP RELAY CONTROL GND	0.75mm ²	FLRYW	1001126384	RL930 (2)
27					1001126356	
28	BLK	148-28 START RTN	0.75mm ²	FLRYW	1001126384	EIC (2)
29	BLK	148-29 COOLANT LEVEL PWR	0.75mm ²	FLRYW	1001126351	SN939 (1)
30					1001126356	
31					1001126356	
32					1001126356	
33					1001126356	
34					1001126356	
35	BLK	148-35-2 START	0.75mm ²	FLRYW	1001126384	S1001 (1)
36					1001126356	
37					1001126356	
38	BLK	148-38 THROTTLE FLAP 4	0.75mm ²	FLRYW	1001126384	EIC (52)
39					1001126356	
40					1001126356	
41					1001126356	
42					1001126356	
43					1001126356	
44	BLK	148-44 EXHAUST GAS RECIRCULATION	0.75mm ²	FLRYW	1001126384	EIC (50)
45					1001126356	
46					1001126356	
47					1001126356	
48					1001126356	
49					1001126356	
50					1001126356	
51					1001126357	
52					1001126356	
53	GRN	CAN 2 LO DIAG CAN LOW	18AWG	J1939 CABLE	1001126384	S968 (1)
54	YEL	CAN 1 HI CUSTOMER CAN HIGH	18AWG	J1939 CABLE	1001126384	S953 (1)
55					1001126356	
56	BLK	148-56 AIR INLET TEMP	0.75mm ²	FLRYW	1001126384	EIC (34)
57	BLK	148-57 WATER IN FUEL SW RTN	0.75mm ²	FLRYW	1001126384	X941 (2)
58					1001126356	
59					1001126356	
60					1001126356	
61	BLK	148-61 FUEL LOW PRESSURE	0.75mm ²	FLRYW	1001126384	EIC (17)
62					1001126356	
63					1001126356	
64	BLK	148-64 WATER IN FUEL SW	0.75mm ²	FLRYW	1001126384	X941 (1)
65					1001126356	
66					1001126356	
67					1001126356	
68	BLK	148-15-68 CLUTCH SWITCH	0.75mm ²	FLRYW	1001126384	ECM-J1 (15)
69					1001126356	
70					1001126356	
71					1001126356	
72	BLK	148-72 THROTTLE FLAP 3	0.75mm ²	FLRYW	1001126384	EIC (49)
73	BLK	148-73 START SIG	0.75mm ²	FLRYW	1001126351	EIC (5)
74					1001126356	
75	YEL	CAN 2 HI DIAG CAN HIGH	18AWG	J1939 CABLE	1001126384	S969 (1)
76	GRN	CAN 1 LO CUSTOMER CAN LOW	18AWG	J1939 CABLE	1001126384	S954 (1)
77					1001126356	
78					1001126356	
79					1001126356	
80					1001126356	
81					1001126356	
82	BLK	148-82 EXHAUST GAS RECIRCULATION	0.75mm ²	FLRYW	1001126384	EIC (51)
83					1001126356	
84					1001126356	
85	BLK	148-85 EXHAUST GAS RECIRCULATION	0.75mm ²	FLRYW	1001126384	EIC (46)
86					1001126356	
87	BLK	148-87 COOLANT LEVEL GND	0.75mm ²	FLRYW	1001126384	SN939 (2)
88	BLK	148-88 IGNITION	0.75mm ²	FLRYW	1001126384	5946 (2)
89					1001126356	
90					1001126356	
91					1001126356	
92					1001126356	
93					1001126356	
94					1001126356	
NC	SHLD	CAN 1 SHLD CUSTOMER CAN SHIELD	18AWG	J1939 CABLE		X901 (6)

CONNECTOR PART NUMBER: 1001133957 ECM-J2						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1						1001126357
2	BLK	248-2 INJECTOR 3	1.5 mm ²	FLRYW	1001126351	EIC (61)
3	BLK	248-3 INJECTOR 2	1.5 mm ²	FLRYW	1001126351	EIC (41)
4	BLK	248-4 MPROP ACTUATOR	1.5 mm ²	FLRYW	1001126351	EIC (19)
5	BLK	248-5 MPROP ACTUATOR	1.5 mm ²	FLRYW	1001126351	EIC (20)
6					1001126356	
7	BLK	248-7 RAIL PRESSURE FUEL	0.75 mm ²	FLRYW	1001126384	EIC (32)
8					1001126356	
9					1001126356	
10					1001126356	
11					1001126356	
12					1001126356	
13					1001126356	
14					1001126356	
15					1001126357	
16	BLK	248-16 INJECTOR 1	1.5 mm ²	FLRYW	1001126351	EIC (35)
17					1001126357	
18	BLK	248-18 INJECTOR 4	1.5 mm ²	FLRYW	1001126351	EIC (37)
19	BLK	248-19 EXHAUST GAS RECIRCULATION	1.5 mm ²	FLRYW	1001126351	EIC (47)
20	BLK	248-20 EXHAUST GAS RECIRCULATION	1.5 mm ²	FLRYW	1001126351	EIC (48)
21					1001126356	
22					1001126356	
23	BLK	248-23 GLOW SENSE	0.75 mm ²	FLRYW	1001126384	MS932 (E)
24	BLK	248-24 BOOST PRESSURE/ TEMP	0.75 mm ²	FLRYW	1001126384	EIC (22)
25	BLK	248-25 RAIL PRESSURE FUEL	0.75 mm ²	FLRYW	1001126384	EIC (31)
26	BLK	248-26 RAIL PRESSURE FUEL	0.75 mm ²	FLRYW	1001126384	EIC (25)
27	BLK	248-27 BOOST PRESSURE/ TEMP	0.75 mm ²	FLRYW	1001126384	EIC (29)
28	BLK	248-28 COOLING TEMPERATURE	0.75 mm ²	FLRYW	1001126384	EIC (24)
29	BLK	248-29 OIL PRESSURE	0.75 mm ²	FLRYW	1001126384	EIC (27)
30					1001126357	
31					1001126357	
32	BLK	248-32 INJECTOR 3	1.5 mm ²	FLRYW	1001126351	EIC (38)
33	BLK	248-33 INJECTOR 1	1.5 mm ²	FLRYW	1001126351	EIC (62)
34					1001126357	
35	BLK	248-35 GLOW RELAY CONTROL GND	0.75 mm ²	FLRYW	1001126351	RL931-85 (1)
36					1001126356	
37	BLK	248-37 ENGINE SPEED CAMSHAFT	18 AWG	CABLE	1001126384	EIC (14)
38	SHLD	248-38 ENGINE SPEED CRANKSHAFT	18 AWG	CABLE	1001126384	EIC (11)
39	BLK	248-39 ENGINE SPEED CRANKSHAFT	18 AWG	CABLE	1001126384	EIC (15)
40	BLK	248-40 AIR INLET TEMP	0.75 mm ²	FLRYW	1001126384	EIC (28)
41					1001126356	
42					1001126356	
43	BLK	248-43 OIL PRESSURE	0.75 mm ²	FLRYW	1001126384	EIC (23)
44	BLK	248-44 OIL PRESSURE	0.75 mm ²	FLRYW	1001126384	EIC (26)
45					1001126357	
46	BLK	248-46 INJECTOR 2	1.5 mm ²	FLRYW	1001126351	EIC (40)
47					1001126357	
48	BLK	248-48 INJECTOR 4	1.5 mm ²	FLRYW	1001126351	EIC (42)
49					1001126357	
50					1001126357	
51					1001126356	
52	WHT	248-52 ENGINE SPEED CAMSHAFT	18 AWG	CABLE	1001126384	EIC (13)
53	SHLD	248-53 ENGINE SPEED CAMSHAFT	18 AWG	CABLE	1001126384	EIC (9)
54	WHT	248-54 ENGINE SPEED CRANKSHAFT	18 AWG	CABLE	1001126384	EIC (21)
55					1001126356	
56					1001126356	
57					1001126356	
58					1001126356	
59					1001126356	
60					1001126357	

Figure 7-53. Deutz T4F Harness - Sheet 2 of 12

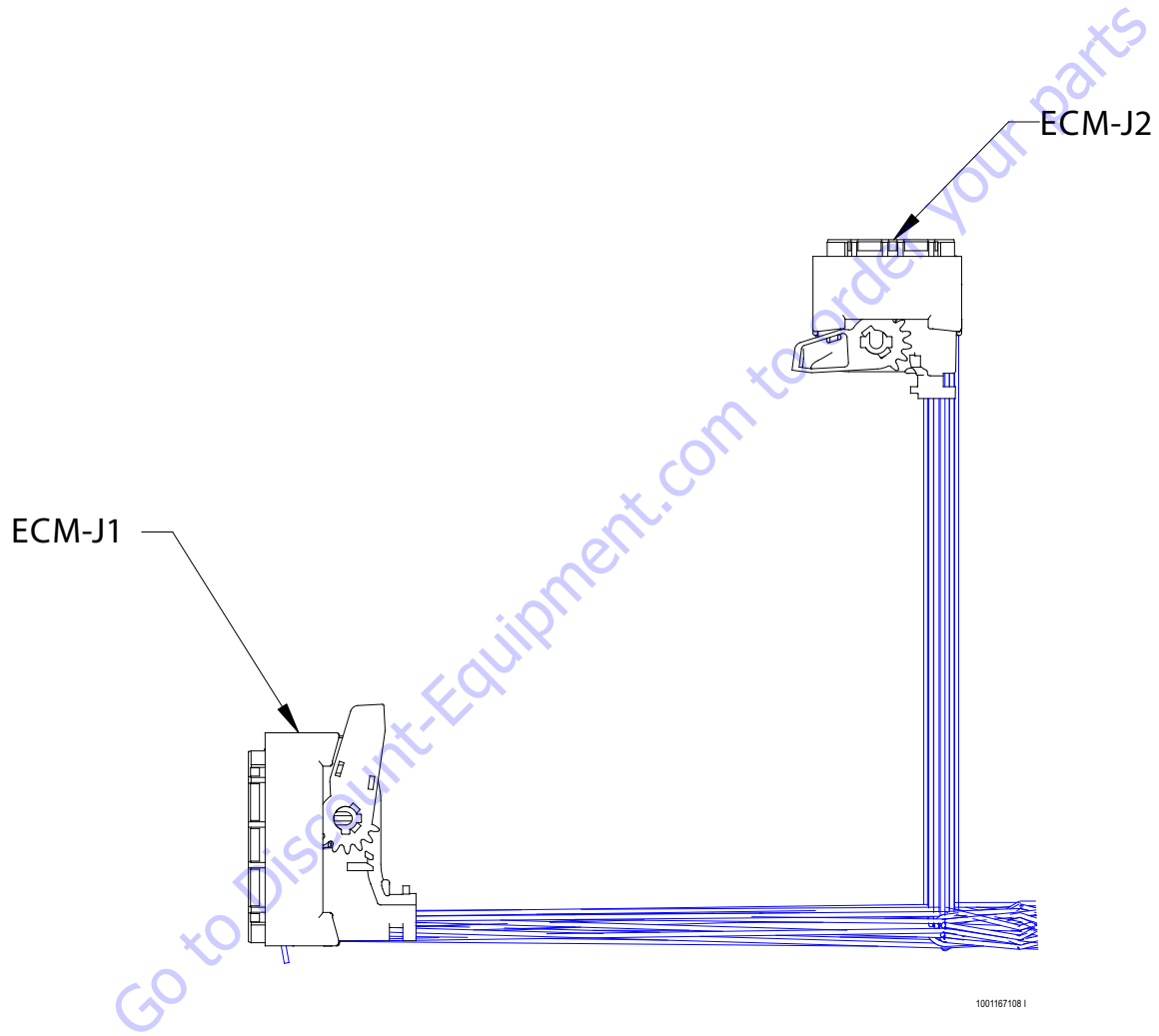


Figure 7-54. Deutz T4F Harness - Sheet 3 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

S951						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	S953 (2)
2	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	X901 (3)
2	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	X950 (M)

S952						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	S954 (2)
2	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	X901 (4)
2	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	X950 (F)

S968						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	ECM-J1 (53)
2	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	S963 (1)
2	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	X965 (B)

S969						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	ECM-J1 (75)
2	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	S964 (1)
2	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	X965 (A)

S953						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	ECM-J1 (54)
2	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	S951 (1)
2	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	N/A	X955 (A)

S954						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	ECM-J1 (76)
2	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	S952 (1)
2	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	N/A	X955 (B)

X955						
CONNECTOR PART NUMBER: 4461095 ATTACH MATING CONNECTOR JLG P/N: 4461070						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	4460944	S953 (2)
B	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	4460944	S954 (2)
C					4460466	

X965						
CONNECTOR PART NUMBER: 4461095 ATTACH MATING CONNECTOR JLG P/N: 4461070						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	4460944	S969 (2)
B	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	4460944	S968 (2)
C					4460466	

T920						
CONNECTOR PART NUMBER: 8220115						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	000-148-246 ECM GND	8 AWG	GXL	N/A	S945 (1)
1	BLK	000-48-1 ENG GND	14 AWG	GXL	N/A	X941 (4)
1	BLK	000-48-2 ENG GND	18 AWG	GXL	N/A	X950 (B)
1	BLK	000-48-3 GND	18 AWG	GXL	N/A	X999 (2)

S944						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	1-148-135 ECM PWR	8 AWG	GXL	N/A	RL930-2 (1)
2	RED	148-1 ECM PWR	2.5 mm ²	FLRYW	N/A	ECM-J1 (1)
2	RED	148-3 ECM PWR	2.5 mm ²	FLRYW	N/A	ECM-J1 (3)
2	RED	148-5 ECM PWR	2.5 mm ²	FLRYW	N/A	ECM-J1 (5)

S945						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	000-148-246 ECM GND	8 AWG	GXL	N/A	T920 (1)
2	BLK	148-2 ECM GND	2.5 mm ²	FLRYW	N/A	ECM-J1 (2)
2	BLK	148-4 ECM GND	2.5 mm ²	FLRYW	N/A	ECM-J1 (4)
2	BLK	148-6 ECM GND	2.5 mm ²	FLRYW	N/A	ECM-J1 (6)

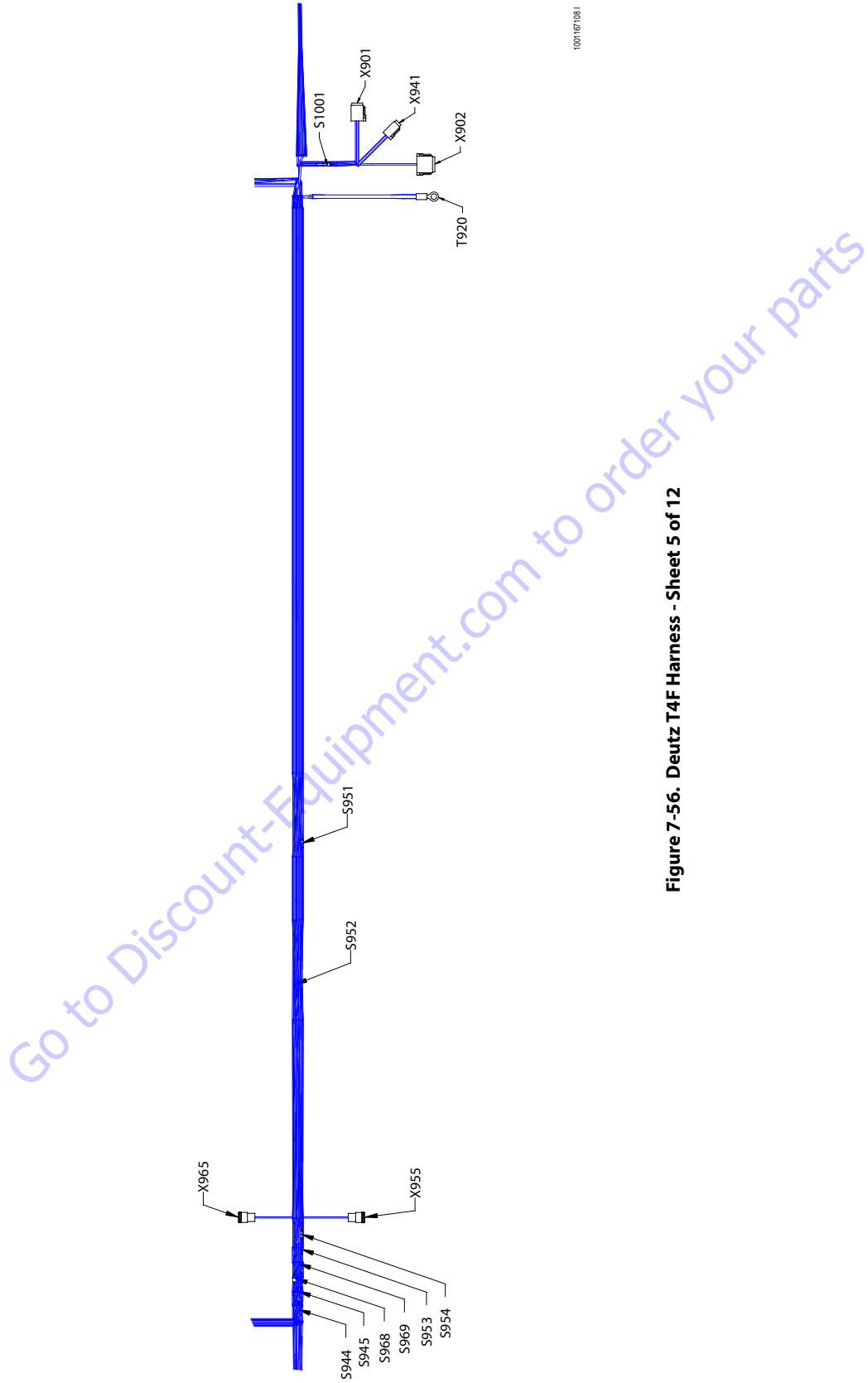
S1001						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	148-35-2 START	0.75 mm ²	FLRYW	N/A	ECM-J1 (35)
1	BLK	148-35-3 -	18 AWG	GXL	N/A	X999 (1)
2	BLK	148-35-1 START	18 AWG	GXL	N/A	X901 (2)

X902						
CONNECTOR PART NUMBER: 4460930						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	2-1-99 IGNITION	18 AWG	GXL	4460465	MS932 (G)
2					4460466	
3					4460466	
4					4460466	
5					4460466	
6					4460466	
7					4460466	
8					4460466	

X941						
CONNECTOR PART NUMBER: 1001220379 CONNECT JLG P/N: 4460932 WITH 4460466 (X4)						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	148-64 WATER IN FUEL SW	0.75 mm ²	FLRYW	4460465	ECM-J1 (64)
2	BLK	148-57 WATER IN FUEL SW RTN	0.75 mm ²	FLRYW	4460465	ECM-J1 (57)
3	WHT	48-96 FUEL PUMP	14 AWG	GXL	4460942	RL930-1 (1)
4	BLK	000-48-1 ENG GND	14 AWG	GXL	4460942	T920 (1)

X901						
CONNECTOR PART NUMBER: 4460894						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1					4460466	
2	BLK	148-35-1 START	18 AWG	GXL	4460465	S1001 (2)
3	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	4460944	S951 (2)
4	GRN	CAN 1 LO CUSTOMER CAN LOW	18 AWG	J1939 CABLE	4460944	S952 (2)
5	RED	47-8 ALT EXCITE	16 AWG	GXL	4460465	EC241-L+ (1)
6	SHLD	CAN 1 SHLD CUSTOMER CAN SHIELD	18 AWG	J1939 CABLE	4460465	ECM1 (NE

Figure 7-55. Deutz T4F Harness - Sheet 4 of 12



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Figure 7-56. Deutz T4F Harness - Sheet 5 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X950						
CONNECTOR PART NUMBER: 2902443						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A	YEL	2-48-2 IGNITION	18 AWG	GXL	4461071	S946 (1)
B	BLK	000-48-2 ENG GND	18 AWG	GXL	4461071	T920 (1)
C						
D						
E						
F	GRN	CAN 1 LO CUSTOMER CAN LO	18 AWG	J1939 CABLE	4461071	S952 (2)
G	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	4461071	S963 (2)
H	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	4461071	S964 (2)
J						
K						
L						
M	YEL	CAN 1 HI CUSTOMER CAN HIGH	18 AWG	J1939 CABLE	4461071	S951 (2)

S946						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	2-48-1 IGNITION	16 AWG	GXL	N/A	MS932 (H)
1	YEL	2-48-2 IGNITION	18 AWG	GXL	N/A	X950 (A)
2	YEL	2-48-3 IGNITION	18 AWG	GXL	N/A	RL931-86 (1)
2	YEL	2-48-4 IGNITION	18 AWG	GXL	N/A	RL930 (1)
2	BLK	148-88 IGNITION	0.75 mm ²	FLRYW	N/A	ECM-J1 (88)

MS932						
CONNECTOR PART NUMBER: 80484084						
INSTALL 1 x 5A FUSE: JLG P/N 8229242						
INSTALL 1 x 10A FUSE: JLG P/N 80983191						
INSTALL SHORT CAP: JLG P/N 1001147264						
SEE MS932 DETAIL						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A					1001116727	
B					1001116727	
C					1001116727	
D					1001116727	
E	BLK	248-23 GLOW SENSE	0.75 mm ²	FLRYW	1001116728	ECM-J2 (23)
F	ORG	248-23-1 GLOW SENSE	18 AWG	GXL	1001116728	RL931-87 (1)
G	YEL	2-1-99 IGNITION	18 AWG	GXL	1001116728	X902 (1)
H	YEL	2-48-1 IGNITION	16 AWG	GXL	1001116728	S946 (1)

S964						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	S969 (2)
2	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	X950 (H)
2	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	N/A	X960 (A)

S963						
CONNECTOR PART NUMBER: SPLICE						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	S968 (2)
2	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	X950 (G)
2	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	N/A	X960 (B)

RL930						
CONNECTOR PART NUMBER: 1001116952						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	2-48-4	18 AWG	GXL	4460465	S946 (2)
2	BLK	148-26	0.75 mm ²	FLRYW	4460465	ECM-J1 (26)

RL930-2						
CONNECTOR PART NUMBER: 1001117106						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	1-148-135 ECM PWR	8 AWG	GXL	N/A	S944 (1)

RL930-1						
CONNECTOR PART NUMBER: 4460043						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	48-96 FUEL PUMP	14 AWG	GXL	N/A	X941 (3)

RL931-85						
CONNECTOR PART NUMBER: 4460247						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	248-35 GLOW RELAY CONTROL GND	0.75 mm ²	FLRYW		ECM-J2 (35)

RL931-87						
CONNECTOR PART NUMBER: 4460703						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	ORG	248-23-1 GLOW SENSE	18 AWG	GXL	N/A	MS932 (F)

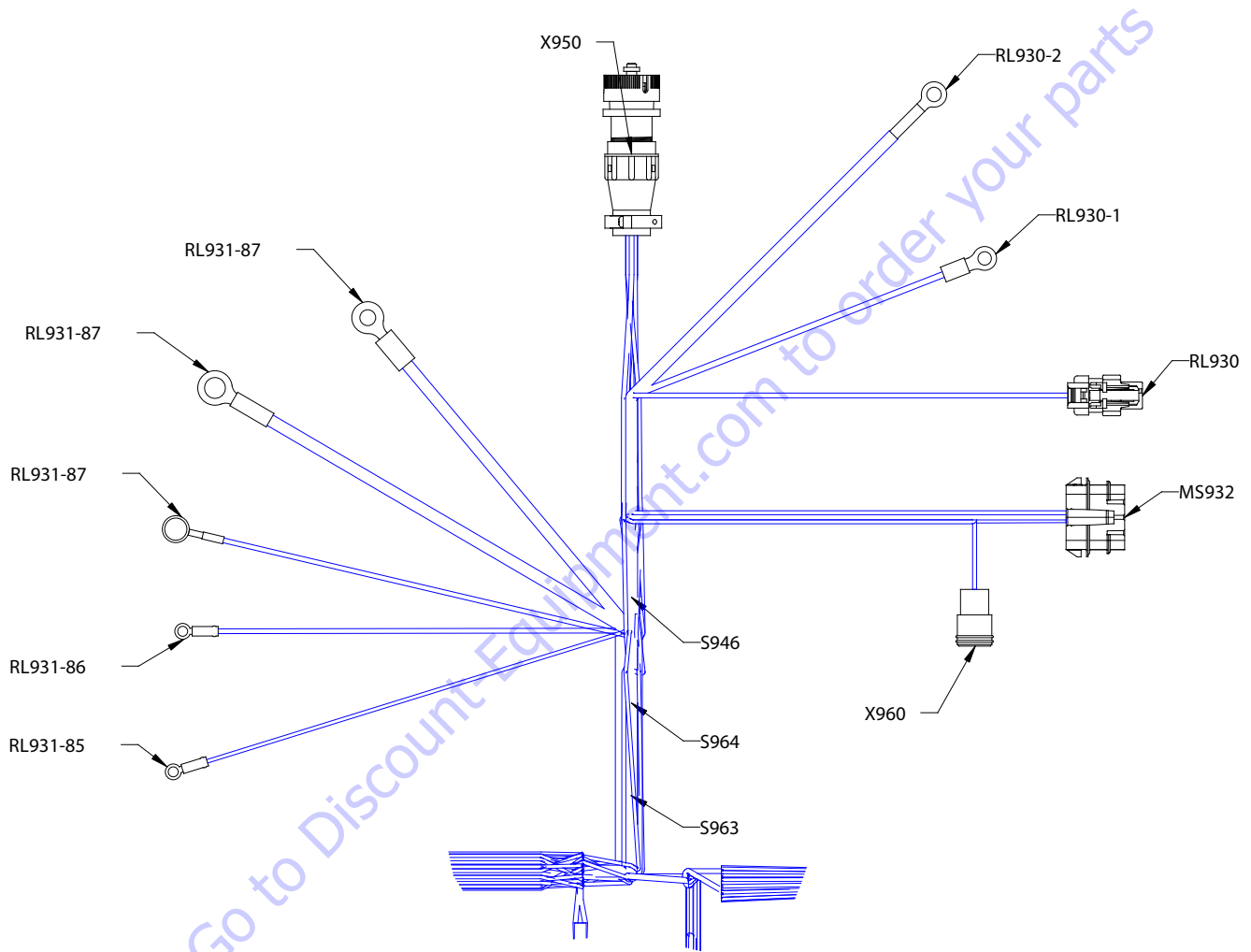
RL931-87						
CONNECTOR PART NUMBER: 8220164						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	48-13 GLOW	8 AWG	GXL		EC18 (1)

RL931-87						
CONNECTOR PART NUMBER: 1001117107						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	48-14 GLOW	8 AWG	GXL	N/A	EC18 (2)

RL931-86						
CONNECTOR PART NUMBER: 4460247						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	YEL	2-48-3 IGNITION	18 AWG	GXL		S946 (2)

X960						
CONNECTOR PART NUMBER: 4461095						
ATTACH MATING CONNECTOR JLG P/N: 4461070						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A	YEL	CAN 2 HI DIAG CAN HIGH	18 AWG	J1939 CABLE	4460944	S964 (2)
B	GRN	CAN 2 LO DIAG CAN LOW	18 AWG	J1939 CABLE	4460944	S963 (2)
C					4460466	

Figure 7-57. Deutz T4F Harness - Sheet 6 of 12



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Figure 7-58. Deutz T4F Harness - Sheet 7 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

EIC						
CONNECTOR PART NUMBER: 1001126362						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	SHLD	248-38	18 AWG	CABLE	1001126363	ECM-J2 (38)
2	BLK	148-28	0.75 mm ²	FLRYW	1001126391	ECM-J1 (28)
3	BLK	148-73	0.75 mm ²	FLRYW	1001126391	ECM-J1 (73)
4					1001126391	
5					1001126391	
6					1001126391	
7					1001126391	
8					1001126391	
9	SHLD	248-53	18 AWG	CABLE	1001126363	ECM-J2 (53)
10					1001126391	
11					1001126391	
12					1001126391	
13	WHT	248-52	18 AWG	CABLE	1001126363	ECM-J2 (52)
14	BLK	248-37	18 AWG	CABLE	1001126363	ECM-J2 (37)
15	BLK	248-39	18 AWG	CABLE	1001126363	ECM-J2 (39)
16					1001126391	
17	BLK	148-61	0.75 mm ²	FLRYW	1001126363	ECM-J1 (61)
18					1001126391	
19	BLK	248-4	1.5 mm ²	FLRYW	1001126363	ECM-J2 (4)
20	BLK	248-5	1.5 mm ²	FLRYW	1001126363	ECM-J2 (5)
21	WHT	248-54	18 AWG	CABLE	1001126363	ECM-J2 (54)
22	BLK	248-24	0.75 mm ²	FLRYW	1001126363	ECM-J2 (24)
23	BLK	248-43	0.75 mm ²	FLRYW	1001126363	ECM-J2 (43)
24	BLK	248-28	0.75 mm ²	FLRYW	1001126363	ECM-J2 (28)
25	BLK	248-26	0.75 mm ²	FLRYW	1001126363	ECM-J2 (26)
26	BLK	248-44	0.75 mm ²	FLRYW	1001126363	ECM-J2 (44)
27	BLK	248-29	0.75 mm ²	FLRYW	1001126363	ECM-J2 (29)
28	BLK	248-40	0.75 mm ²	FLRYW	1001126363	ECM-J2 (40)
29	BLK	248-27	0.75 mm ²	FLRYW	1001126363	ECM-J2 (27)
30					1001126391	
31	BLK	248-25	0.75 mm ²	FLRYW	1001126363	ECM-J2 (25)
32	BLK	248-7	0.75 mm ²	FLRYW	1001126363	ECM-J2 (7)
33					1001126391	
34	BLK	148-56	0.75 mm ²	FLRYW	1001126363	ECM-J1 (56)
35	BLK	248-16	1.5 mm ²	FLRYW	1001126363	ECM-J2 (16)
36					1001126391	
37	BLK	248-18	1.5 mm ²	FLRYW	1001126363	ECM-J2 (18)
38	BLK	248-32	1.5 mm ²	FLRYW	1001126363	ECM-J2 (32)
39					1001126391	
40	BLK	248-46	1.5 mm ²	FLRYW	1001126363	ECM-J2 (46)
41	BLK	248-3	1.5 mm ²	FLRYW	1001126363	ECM-J2 (3)
42	BLK	248-48	1.5 mm ²	FLRYW	1001126363	ECM-J2 (48)
43					1001126391	
44					1001126391	
45					1001126391	
46	BLK	148-85	0.75 mm ²	FLRYW	1001126363	ECM-J1 (85)
47	BLK	248-19	1.5 mm ²	FLRYW	1001126363	ECM-J2 (19)
48	BLK	248-20	1.5 mm ²	FLRYW	1001126363	ECM-J2 (20)
49	BLK	148-72	0.75 mm ²	FLRYW	1001126363	ECM-J1 (72)
50	BLK	148-44	0.75 mm ²	FLRYW	1001126363	ECM-J1 (44)
51	BLK	148-82	0.75 mm ²	FLRYW	1001126363	ECM-J1 (82)
52	BLK	148-38	0.75 mm ²	FLRYW	1001126363	ECM-J1 (38)
53					1001126391	
54					1001126391	
55					1001126391	
56					1001126391	
57					4461008	
58					4461008	
59					4461008	
60					4461008	
61	BLK	248-2	1.5 mm ²	FLRYW	1001126365	ECM-J2 (2)
62	BLK	248-33	1.5 mm ²	FLRYW	1001126365	ECM-J2 (33)

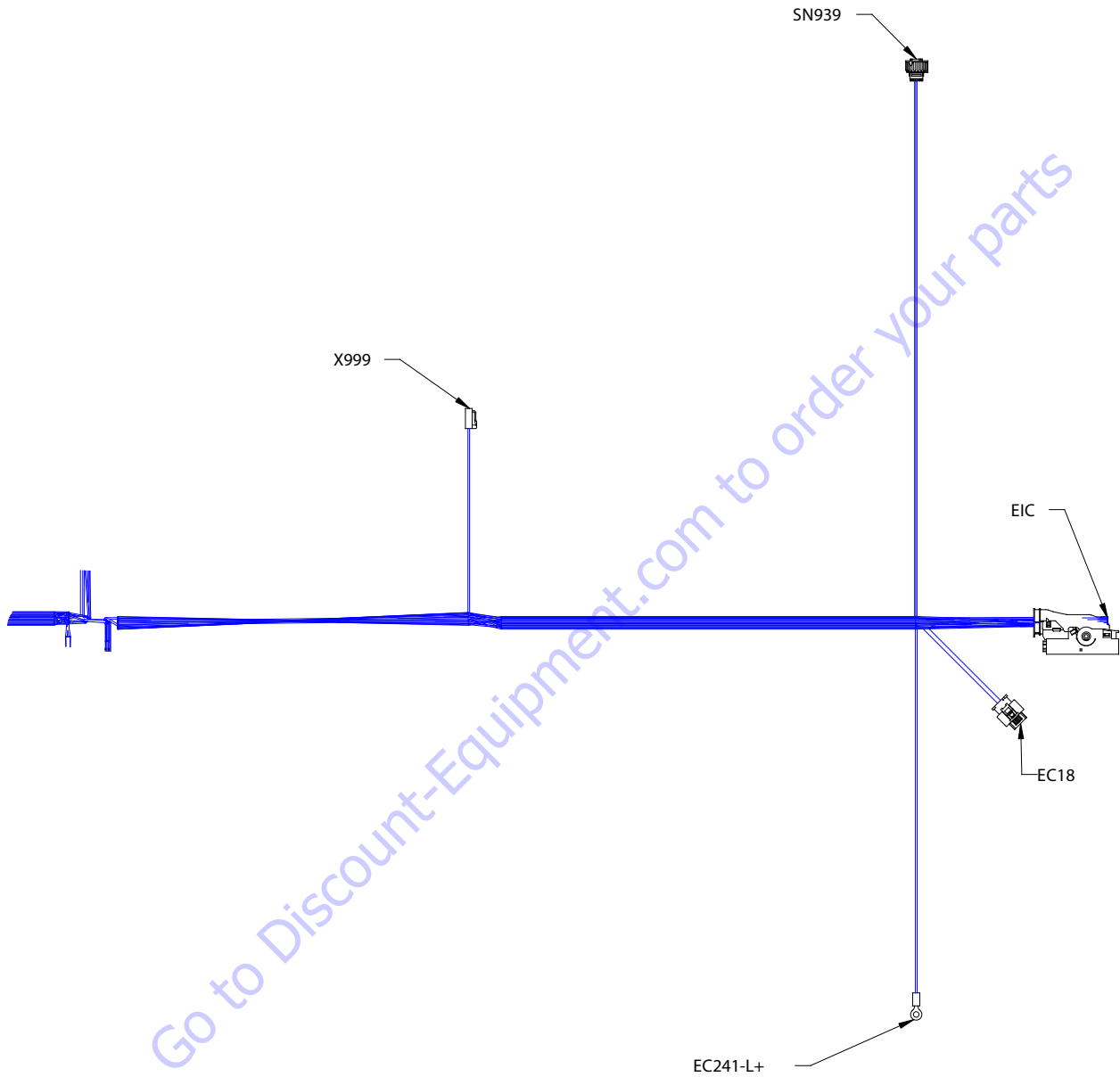
X999						
CONNECTOR PART NUMBER: 4460891						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	148-35-3 -	18 AWG	GXL	4460465	S1001 (1)
2	BLK	000-48-3 GND	18 AWG	GXL	4460465	T920 (1)

EC241-L+						
CONNECTOR PART NUMBER: 1001117107						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	47-8 ALT EXCITE	16 AWG	GXL		X901 (5)

EC18						
CONNECTOR PART NUMBER: 1001142938						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	RED	48-13 GLOW	8 AWG	GXL	1001142940	RL931-87 (1)
2	RED	48-14 GLOW	8 AWG	GXL	1001142940	RL931-87 (1)

SN939						
CONNECTOR PART NUMBER: 1001133714						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	148-29 COOLANT LEVEL PWR	0.75 mm ²	FLRYW	1001133715	ECM-J1 (29)
2	BLK	148-87 COOLANT LEVEL GND	0.75 mm ²	FLRYW	1001133715	ECM-J1 (87)
3	BLK	148-13 COOLANT LEVEL SIG	0.75 mm ²	FLRYW	1001133715	ECM-J1 (13)
4					1001135651	

Figure 7-59. Deutz T4F Harness - Sheet 8 of 12



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Figure 7-60. Deutz T4F Harness - Sheet 9 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM			TO				
					REFERENCE	CONNECTOR/PIN	PIN	REFERENCE	CONNECTOR/PIN	PIN	TERM.	SEAL
000-148-246	BLK	8	GXL	85	1920	8220115	1	5945	SPLICE	1	N/A	
000-48-1	BLK	14	GXL	17	T920	8220115	1	X941	1001220379	4	4460942	
000-48-2	BLK	18	GXL	22	T920	8220115	22	X950	2902443	B	4461071	
000-48-3	BLK	18	GXL	40	T920	8220115	1	X999	4460891	2	4460465	
1-148-135	RED	8	GXL	96	RL930-2	1001117106	1	S944	SPLICE	1	N/A	
2-1-99	YEL	18	GXL	26	M5932	80484084	G	X902	4460350	1	4460465	
2-48-1	YEL	16	GXL	11	M5932	80484084	H	S946	SPLICE	1	N/A	
2-48-2	YEL	18	GXL	8	X950	2902443	A	S946	SPLICE	2	N/A	
2-48-4	YEL	18	GXL	13	RL930	1001116952	1	S946	SPLICE	2	N/A	
47-8	RED	16	GXL	74	EC241-L+	1001116952	1	X901	4460894	5	4460465	
48-14	RED	8	GXL	65	RL931-87	1001117107	1	EC18	1001142938	2	1001142940	1001142941
48-96	WHT	14	GXL	25	RL930-1	4460043	1	X941	1001220379	3	4460942	
148-13	BLK	0.75	FLRYW	165	ECM-J1	1001133956	13	SN939	1001133714	3	1001133715	100135650
148-15-68	BLK	0.75	FLRYW	1	ECM-J1	1001133956	15	ECM-J1	1001133956	68	100126384	
148-15-68	RED	2.5	FLRYW	11	S944	SPLICE	2	ECM-J1	1001133956	1	100126352	100126353
148-26	BLK	0.75	FLRYW	109	RL930	1001116952	2	ECM-J1	1001133956	26	100126384	
148-28	BLK	0.75	FLRYW	149	ECM-J1	1001126384	28	EIC	1001126362	2	100126391	
148-29	BLK	0.75	FLRYW	166	ECM-J1	1001133956	29	SN939	1001133714	1	1001133715	100113560
148-2	BLK	2.5	FLRYW	12	S945	SPLICE	2	ECM-J1	1001133956	2	100126352	100126353
148-35-1	BLK	18	GXL	5	X901	4460894	2	S1001	SPLICE	2	N/A	
148-35-2	BLK	0.75	FLRYW	93	ECM-J1	1001133956	35	S1001	SPLICE	1	N/A	
148-35-3	BLK	18	GXL	33	S1001	SPLICE	1	X999	4460891	1	4460465	
148-38	BLK	0.75	FLRYW	148	EIC	1001126363	52	ECM-J1	1001133956	38	100126384	
148-3	RED	2.5	FLRYW	11	ECM-J1	1001133956	3	S944	SPLICE	2	N/A	
148-44	BLK	0.75	FLRYW	149	EIC	1001126362	50	ECM-J1	1001133956	44	100126384	
148-4	BLK	2.5	FLRYW	12	ECM-J1	1001133956	4	S945	SPLICE	2	N/A	
148-56	BLK	0.75	FLRYW	148	EIC	1001126362	34	ECM-J1	1001126364			
148-57	BLK	0.75	FLRYW	98	X941	1001220379	2	4460465	ECM-J1	56	100126384	
148-61	RED	2.5	FLRYW	11	S944	SPLICE	2	ECM-J1	1001133956	57	100126384	
148-64	BLK	0.75	FLRYW	149	EIC	1001126362	17	ECM-J1	1001133956	5	100126352	100126353
148-6	BLK	0.75	FLRYW	97	X941	1001220379	1	ECM-J1	1001133956	61	100126384	
148-6	BLK	2.5	FLRYW	12	S945	SPLICE	2	ECM-J1	1001133956	64	100126352	100126353
148-72	BLK	0.75	FLRYW	148	EIC	1001126363	49	ECM-J1	1001126364	72	100126384	
148-73	BLK	0.75	FLRYW	147	ECM-J1	1001133956	73	ECM-J1	1001133956	3	100126384	
148-82	BLK	0.75	FLRYW	150	EIC	1001126362	51	EIC	100126364	82	100126384	
148-85	BLK	0.75	FLRYW	148	EIC	1001126362	46	ECM-J1	1001133956	85	100126384	
148-87	BLK	0.75	FLRYW	169	ECM-J1	1001133956	87	SN939	1001133714	2	1001133715	100113560
148-88	BLK	0.75	FLRYW	97	ECM-J1	1001133956	88	S946	SPLICE	2	N/A	
248-16	BLK	1.5	FLRYW	147	ECM-J2	1001133957	16	EIC	1001126362	35	100126363	1001126364
248-18	BLK	1.5	FLRYW	147	ECM-J2	1001133957	18	EIC	1001126362	37	100126363	1001126364
248-19	BLK	1.5	FLRYW	146	ECM-J2	1001133957	19	EIC	1001126362	47	100126363	1001126364
248-20	BLK	1.5	FLRYW	147	ECM-J2	1001133957	20	EIC	1001126362	48	100126363	1001126364
248-23-1	ORG	18	GXL	19	M5932	80484084	F	RL931-87	4460708	1	N/A	
248-23-1	BLK	0.75	FLRYW	109	M5932	80484084	E	ECM-J2	1001133957	23	100126384	1001126364
248-24	BLK	0.75	FLRYW	148	ECM-J2	1001133957	24	ECM-J2	1001126362	22	100126363	1001126364
248-25	BLK	0.75	FLRYW	148	ECM-J2	1001133957	25	EIC	1001126362	31	100126363	1001126364
248-26	BLK	0.75	FLRYW	148	ECM-J2	1001133957	26	EIC	1001126362	25	100126363	1001126364

Figure 7-61. Deutz T4F Harness - Sheet 10 of 12

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

WIRE NO	WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM				TO					
						REFERENCE	CONNECTOR/PIN	PIN	TERM.	SEAL	REFERENCE	CONNECTOR/PIN	PIN	TERM.	SEAL
248-27	BOOST PRESSURE/ TEMP	BLK	0.75	FLRYW	148	ECM-J2	1001133957	27	1001126384		EIC	100126362	29	100126363	100126364
248-28	COOLING TEMPERATURE	BLK	0.75	FLRYW	149	ECM-J2	1001133957	28	1001126384		EIC	100126362	24	100126363	100126364
248-29	OIL PRESSURE	BLK	0.75	FLRYW	146	ECM-J2	1001133957	29	1001126384		EIC	100126362	27	100126363	100126364
248-2	INJECTOR 3	BLK	1.5	FLRYW	147	ECM-J2	1001133957	2	1001126351		EIC	100126362	61	100126365	4461054
248-3	INJECTOR 3	BLK	1.5	FLRYW	148	ECM-J2	1001133957	32	1001126351		EIC	100126362	38	100126363	100126364
248-33	INJECTOR 1	BLK	1.5	FLRYW	148	ECM-J2	1001133957	33	1001126351		EIC	100126362	62	100126365	4461054
248-35	GLOW RELAY CONTROL GND	BLK	0.75	FLRYW	106	RL931-85		1			ECM-J2	1001133957	35	100126351	
248-37	ENGINE SPEED CAMSHAFT	BLK	18	CABLE	148	ECM-J2	1001133957	37	1001126384		EIC	100126362	14	100126363	100126364
248-38	ENGINE SPEED CAMSHAFT	SHLD	18	CABLE	146	EIC	1001126362	1	1001126384	100126364	ECM-J2	1001133957	38	100126384	
248-39	ENGINE SPEED CRANKSHAFT	BLK	18	CABLE	146	ECM-J2	1001133957	39	1001126384		EIC	100126362	15	100126363	100126364
248-3	INJECTOR 2	BLK	1.5	FLRYW	147	ECM-J2	1001133957	3	1001126351		EIC	100126362	41	100126363	100126364
248-40	AIR INLET TEMP	BLK	0.75	FLRYW	147	ECM-J2	1001133957	40	1001126384		EIC	100126362	28	100126363	100126364
248-43	OIL PRESSURE	BLK	0.75	FLRYW	146	ECM-J2	1001133957	43	1001126384		EIC	100126362	23	100126363	100126364
248-44	OIL PRESSURE	BLK	0.75	FLRYW	149	ECM-J2	1001133957	44	1001126384		EIC	100126362	26	100126363	100126364
248-46	INJECTOR 2	BLK	1.5	FLRYW	147	ECM-J2	1001133957	46	1001126351		EIC	100126362	40	100126363	100126364
248-48	INJECTOR 4	BLK	1.5	FLRYW	147	ECM-J2	1001133957	48	1001126351		EIC	100126362	42	100126363	100126364
248-4	IMPROP ACTUATOR	BLK	1.5	FLRYW	146	ECM-J2	1001133957	4	1001126351		EIC	100126362	19	100126363	100126364
248-52	ENGINE SPEED CAMSHAFT	WHT	18	CABLE	147	ECM-J2	1001133957	52	1001126384		EIC	100126362	13	100126363	100126364
248-53	ENGINE SPEED CAMSHAFT	SHLD	18	CABLE	149	ECM-J2	1001133957	53	1001126384		EIC	100126362	9	100126363	100126364
248-54	ENGINE SPEED CRANKSHAFT	WHT	18	CABLE	147	ECM-J2	1001133957	54	1001126384		EIC	100126362	21	100126363	100126364
248-5	IMPROP ACTUATOR	BLK	1.5	FLRYW	147	ECM-J2	1001133957	5	1001126351		EIC	100126362	20	100126363	100126364
248-7	RAIL PRESSURE FUEL	BLK	0.75	FLRYW	147	ECM-J2	1001133957	7	1001126384		EIC	100126362	32	100126363	100126364
48-13	GLOW	RED	8	GXL	67	RL931-87	8220164	1			EC18	1001142938	1	1001142940	1001142941
CAN1 HI	CUSTOMER CAN HIGH	YEL	18	J1939 CABLE	59	X950	2902443	M	4461071		S951	SPLICE	2	N/A	
CAN1 HI	CUSTOMER CAN HIGH	YEL	18	J1939 CABLE	29	S953	SPLICE	2	N/A		S951	SPLICE	1	N/A	
CAN1 HI	CUSTOMER CAN HIGH	YEL	18	J1939 CABLE	55	X901	4460894	3	4460944		S951	SPLICE	2	N/A	
CAN1 HI	CUSTOMER CAN HIGH	YEL	18	J1939 CABLE	15	ECM-J1	1001133956	54	1001126384		S953	SPLICE	1	N/A	
CAN1 HI	CUSTOMER CAN HIGH	YEL	18	J1939 CABLE	6	S953	SPLICE	2	N/A		X955	4461095	A	4460944	
CAN1 LO	CUSTOMER CAN LO	GRN	18	J1939 CABLE	64	X901	4460894	4	4460944		S952	SPLICE	2	N/A	
CAN1 LO	CUSTOMER CAN LO	GRN	18	J1939 CABLE	18	S954	SPLICE	2	N/A		S952	SPLICE	1	N/A	
CAN1 LO	CUSTOMER CAN LO	GRN	18	J1939 CABLE	69	X950	2902443	F	4461071		S952	SPLICE	2	N/A	
CAN1 LO	CUSTOMER CAN LO	GRN	18	J1939 CABLE	16	ECM-J1	1001133956	76	1001126384		S954	SPLICE	1	N/A	
CAN1 LO	CUSTOMER CAN LO	GRN	18	J1939 CABLE	6	S954	SPLICE	2	N/A		X955	4461095	B	4460944	
CAN1 SHLD	CUSTOMER CAN SHIELD	SHLD	18	J1939 CABLE	99	X901	4460894	6	4460945		ECM-J1	1001133956	NC		
CAN2 HI	DIAG CAN HIGH	YEL	18	J1939 CABLE	12	S964	SPLICE	2	N/A		X960	4461095	A	4460944	
CAN2 HI	DIAG CAN HIGH	YEL	18	J1939 CABLE	10	X950	2902443	H	4461071		S964	SPLICE	2	N/A	
CAN2 HI	DIAG CAN HIGH	YEL	18	J1939 CABLE	14	ECM-J1	1001133956	75	1001126384		S969	SPLICE	1	N/A	
CAN2 HI	DIAG CAN HIGH	YEL	18	J1939 CABLE	79	S964	SPLICE	2	N/A		S969	SPLICE	2	N/A	
CAN2 HI	DIAG CAN HIGH	YEL	18	J1939 CABLE	7	S969	SPLICE	2	N/A		X965	4461095	A	4460944	
CAN2 LO	DIAG CAN LOW	GRN	18	J1939 CABLE	14	S963	SPLICE	2	N/A		X960	4461095	B	4460944	
CAN2 LO	DIAG CAN LOW	GRN	18	J1939 CABLE	12	X950	2902443	G	4461071		S963	SPLICE	2	N/A	
CAN2 LO	DIAG CAN LOW	GRN	18	J1939 CABLE	13	ECM-J1	1001133956	53	1001126384		S968	SPLICE	1	N/A	
CAN2 LO	DIAG CAN LOW	GRN	18	J1939 CABLE	80	S963	SPLICE	1	N/A		S968	SPLICE	2	N/A	
CAN2 LO	DIAG CAN LOW	GRN	18	J1939 CABLE	8	S968	SPLICE	2	N/A		X965	4461095	B	4460944	

Figure 7-62. Deutz T4F Harness - Sheet 11 of 12

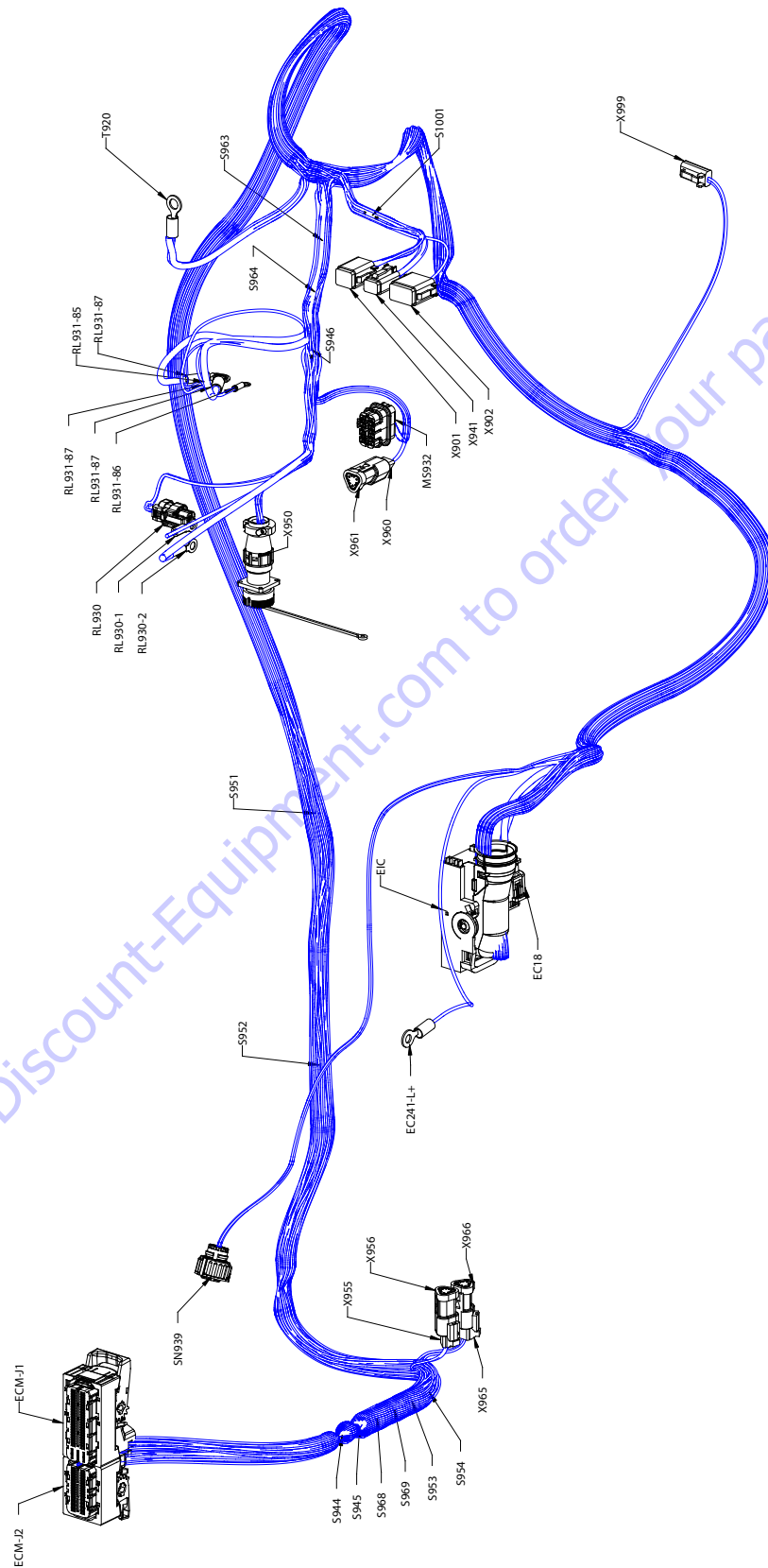


Figure 7-63. Deutz T4F Harness - Sheet 12 of 12

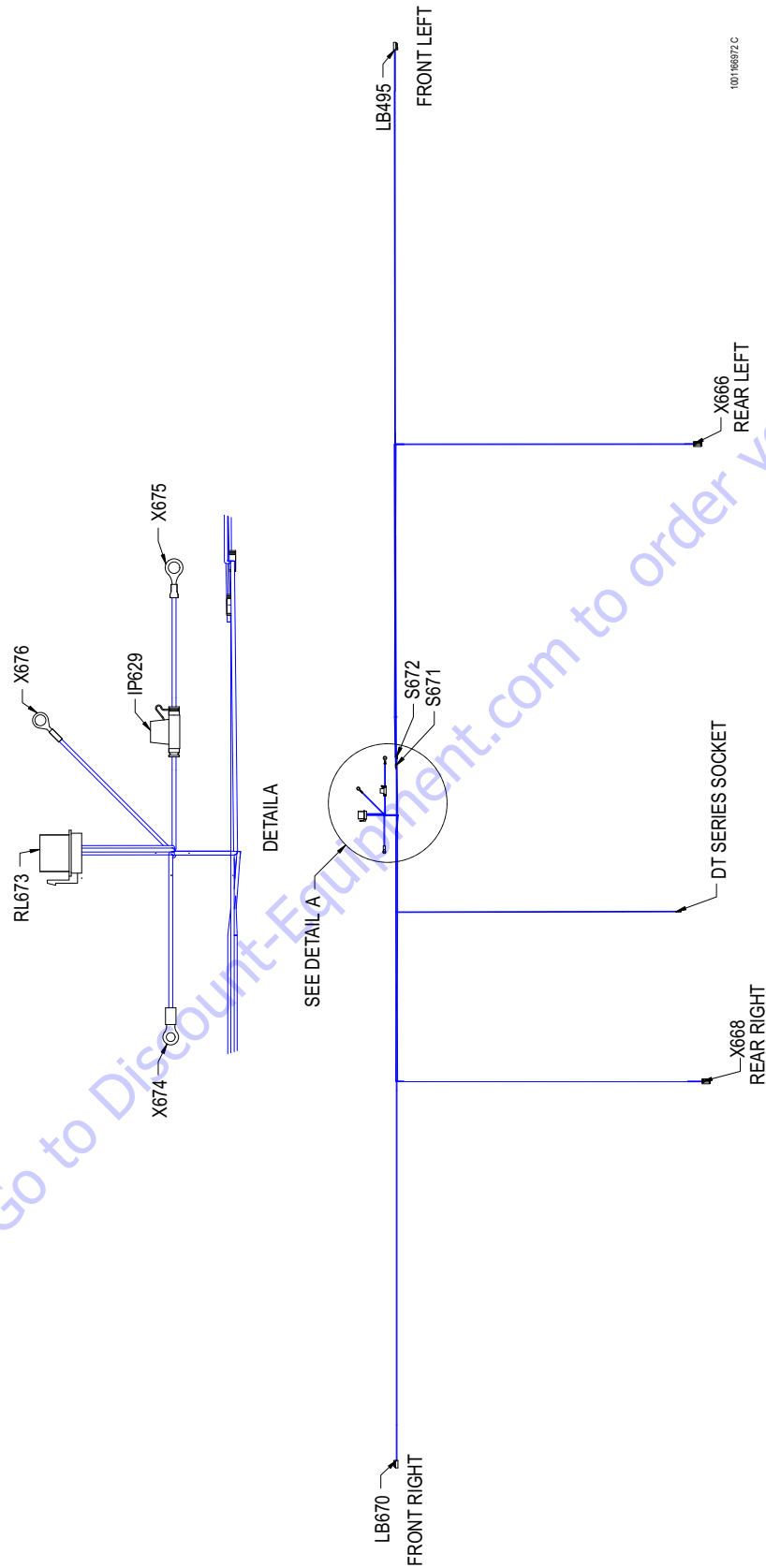


Figure 7-64. Chassis Head and Tail Lights Harness - Sheet 1 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

LB495					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-11	16 AWG	GXL	S671 (1)
2	BLK	000-60-11	16 AWG	GXL	S672 (1)

X668					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	6-30	16 AWG	GXL	S671 (2)
3	BLK	000-60-30	16 AWG	GXL	S672 (2)
4					

LB495					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-11	16 AWG	GXL	S671 (1)
2	BLK	000-60-11	16 AWG	GXL	S672 (1)

RL673					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-146	14 AWG	GXL	IP629 (2)
2	BLK	000-40-109	16 AWG	GXL	X676 (1)
3					
4	WHT	6-8	14 AWG	GXL	S671 (2)
5	WHT	4-145	18 AWG	GXL	X505 (1)

X674					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	4-122	14 AWG	GXL	S672 (2)

IP629					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-146	14 AWG	GXL	X675 (1)
2	WHT	4-146	14 AWG	GXL	RL673 (1)

X675					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-146	14 AWG	GXL	IP629 (1)

X676					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-40-109	16 AWG	GXL	RL673 (2)

S671					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-11	16 AWG	GXL	LB495 (1)
1	WHT	6-29	16 AWG	GXL	LB670 (1)
2	WHT	6-13	16 AWG	GXL	X666 (2)
2	WHT	6-30	16 AWG	GXL	X668 (2)
2	WHT	6-8	14 AWG	GXL	RL673 (4)

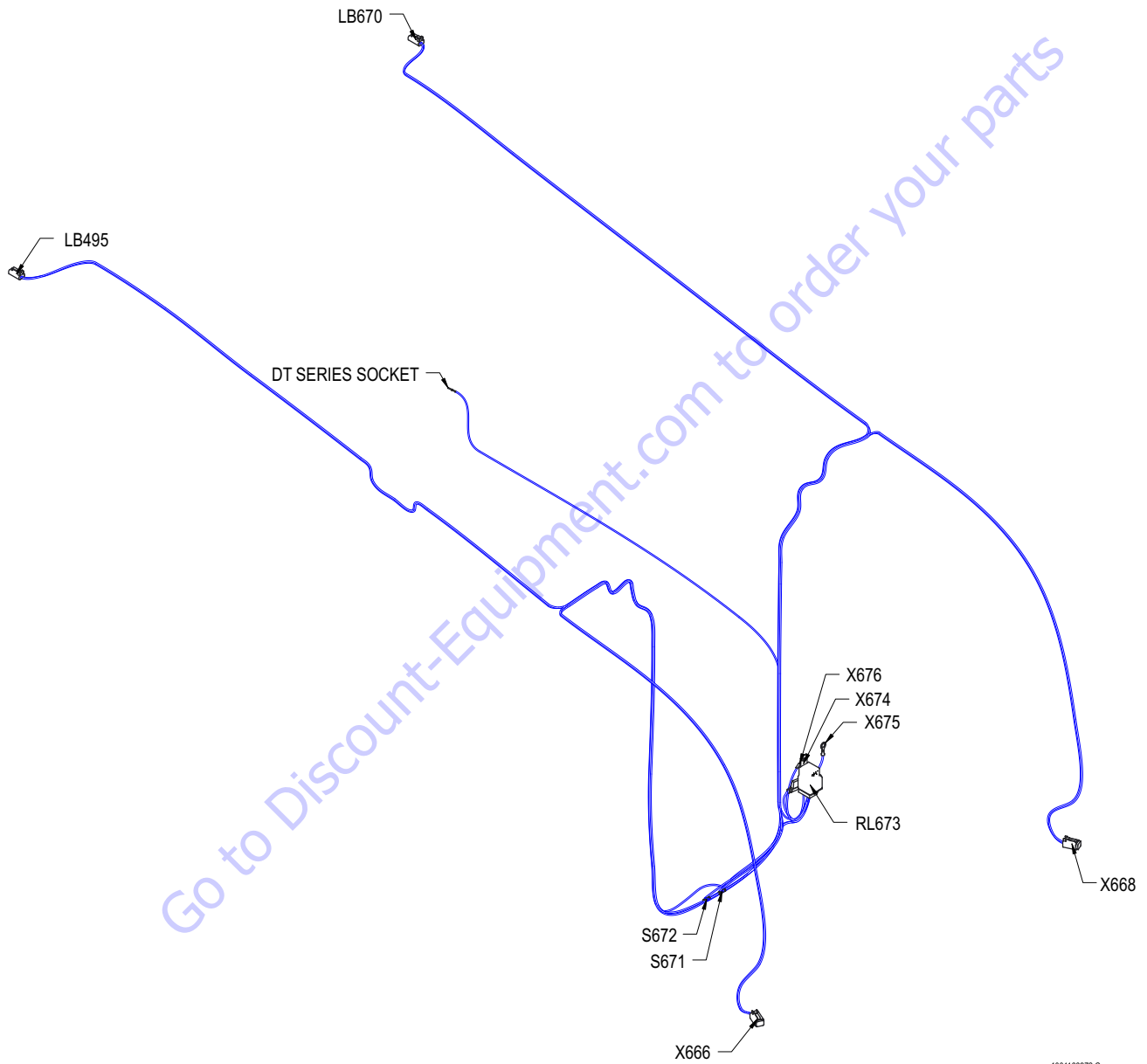
X505					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-145	18 AWG	GXL	RL673 (5)

X666					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1					
2	WHT	6-13	16 AWG	GXL	S671 (2)
3	BLK	000-60-12	16 AWG	GXL	S672 (2)
4					

S672					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-60-11	16 AWG	GXL	LB495 (2)
1	BLK	000-60-29	16 AWG	GXL	LB670 (2)
2	BLK	000-60-12	16 AWG	GXL	X666 (3)
2	BLK	000-60-30	16 AWG	GXL	X668 (3)
2	BLK	4-122	14 AWG	GXL	X674 (1)

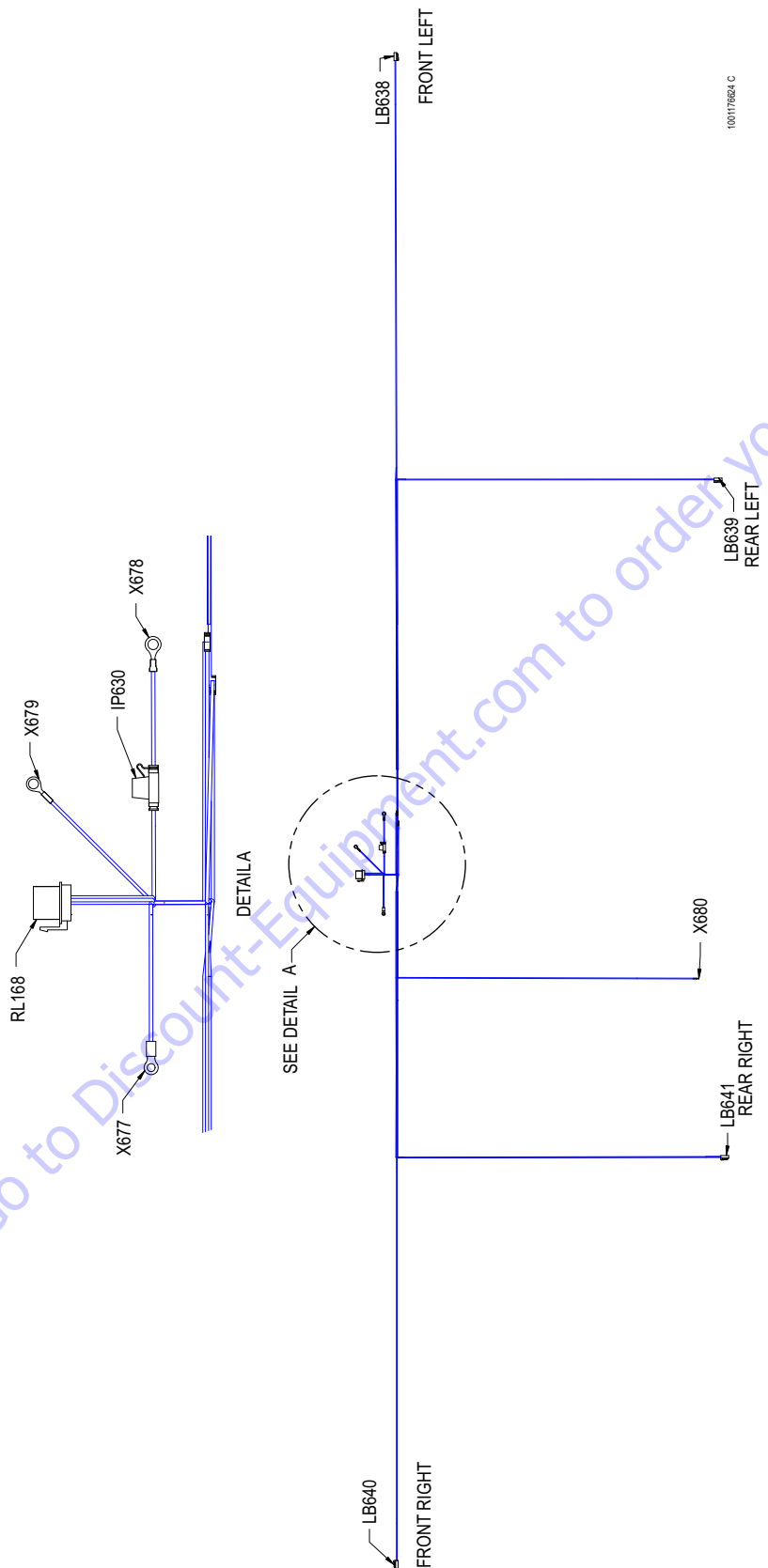
WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM		TO	
					REFERENCE	PIN	REFERENCE	PIN
000-40-109	BLK	16	GXL	196	RL673	2	X676	1
000-60-11	BLK	16	GXL	2680	LB495	2	S672	1
000-60-12	BLK	16	GXL	2327	S672	2	X666	3
000-60-29	BLK	16	GXL	2689	S672	1	LB670	2
000-60-30	BLK	16	GXL	2399	S672	2	X668	3
4-122	BLK	14	GXL	388	S672	2	X674	1
4-145	WHT	18	GXL	1516	X505	1	RL673	5
4-146	WHT	14	GXL	140	IP629	2	RL673	1
4-146	WHT	14	GXL	83	IP629	1	X675	1
6-11	WHT	16	GXL	2723	S671	1	LB495	1
6-13	WHT	16	GXL	2372	S671	2	X666	2
6-29	WHT	16	GXL	2651	S671	1	LB670	1
6-30	WHT	16	GXL	2358	S671	2	X668	2
6-8	WHT	14	GXL	308	S671	2	RL673	4

Figure 7-65. Chassis Head and Tail Lights Harness - Sheet 2 of 3



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Figure 7-66. Chassis Head and Tail Lights Harness - Sheet 3 of 3



100117684 C

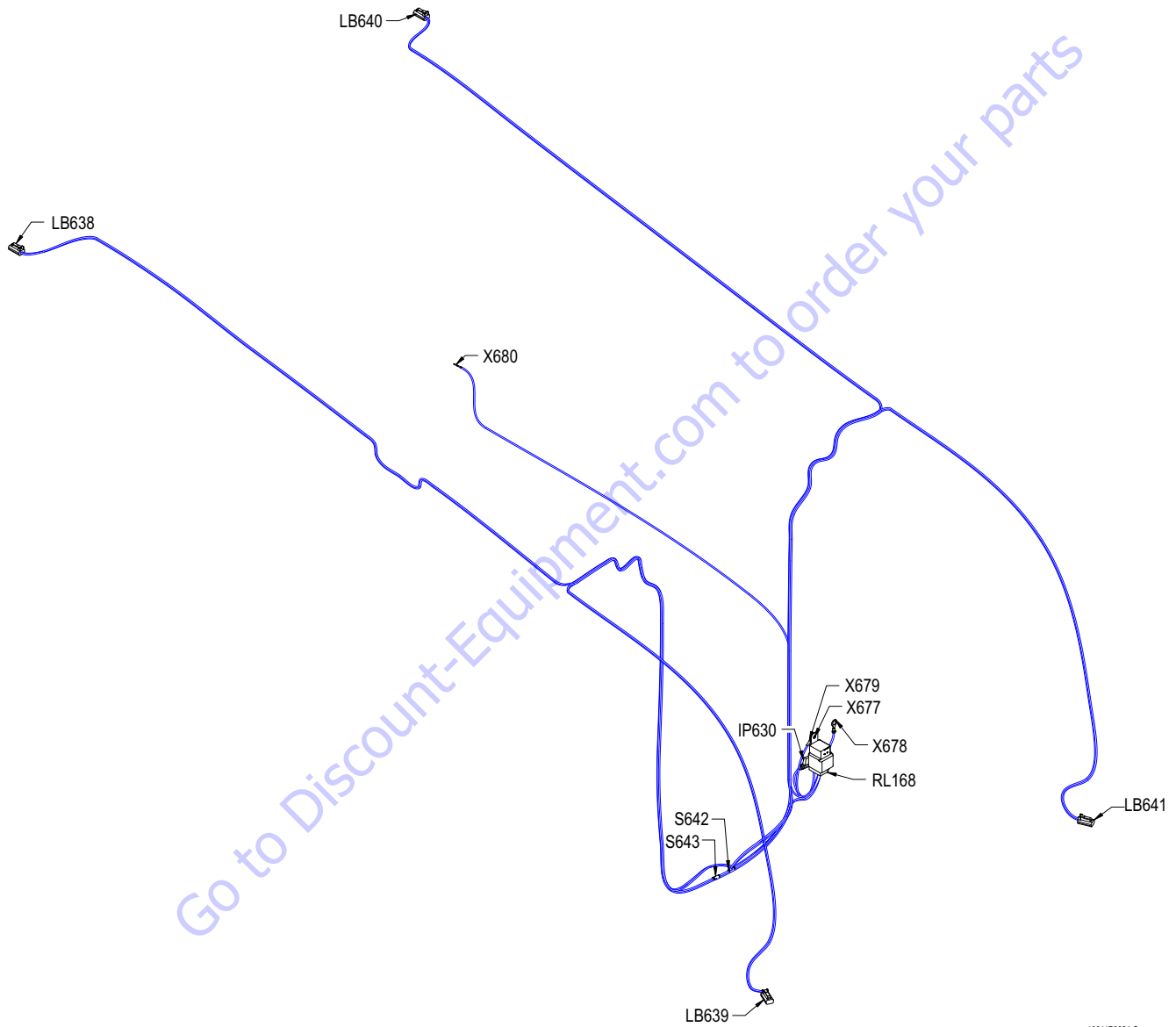
Figure 7-67. Chassis Work Lights Harness- Sheet 1 of 3

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

LB638					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-4	16 AWG	GXL	S642 (1)
2	BLK	000-60-3	16 AWG	GXL	S643 (1)
LB639					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-5	16 AWG	GXL	S642 (2)
2	BLK	000-60-4	16 AWG	GXL	S643 (2)
LB640					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-6	16 AWG	GXL	S642 (1)
2	BLK	000-60-5	16 AWG	GXL	S643 (1)
LB641					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-7	16 AWG	GXL	S642 (2)
2	BLK	000-60-6	16 AWG	GXL	S643 (2)
X680					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-28	16 AWG	GXL	RL168 (5)
X677					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-40-17	14 AWG	GXL	S643 (2)
X679					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-40-9	16 AWG	GXL	RL168 (2)
X678					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	4-70	14 AWG	GXL	IP630 (1)
IP630					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	4-70	14 AWG	GXL	X678 (1)
2	BLK	4-70	14 AWG	GXL	RL168 (1)
RL168					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	4-70	14 AWG	GXL	IP630 (2)
2	BLK	000-40-9	16 AWG	GXL	X679 (1)
3					
4	WHT	6-8	14 AWG	GXL	S642 (2)
5	WHT	4-28	16 AWG	GXL	X680 (1)
S642					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	6-4	16 AWG	GXL	LB638 (1)
1	WHT	6-6	16 AWG	GXL	LB640 (1)
2	WHT	6-5	16 AWG	GXL	LB639 (1)
2	WHT	6-7	16 AWG	GXL	LB641 (1)
2	WHT	6-8	14 AWG	GXL	RL168 (4)
S643					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	BLK	000-60-3	16 AWG	GXL	LB638 (2)
1	BLK	000-60-5	16 AWG	GXL	LB640 (2)
2	BLK	000-40-17	14 AWG	GXL	X677 (1)
2	BLK	000-60-4	16 AWG	GXL	LB639 (2)
2	BLK	000-60-6	16 AWG	GXL	LB641 (2)

WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM		TO	
					REFERENCE	PIN	REFERENCE	PIN
000-40-17	BLK	14	GXL	386	S643	2	X677	1
000-40-9	BLK	16	GXL	196	RL168	2	X679	1
000-60-3	BLK	16	GXL	2680	LB638	2	S643	1
000-60-4	BLK	16	GXL	2316	S643	2	LB639	2
000-60-5	BLK	16	GXL	2682	S643	1	LB640	2
000-60-6	BLK	16	GXL	2396	S643	2	LB641	2
4-28	WHT	16	GXL	1516	RL168	5	X680	1
4-70	BLK	14	GXL	149	IP630	2	RL168	1
4-70	BLK	14	GXL	79	X678	1	IP630	1
6-4	WHT	16	GXL	2739	S642	1	LB638	1
6-5	WHT	16	GXL	2375	S642	2	LB639	1
6-6	WHT	16	GXL	2643	S642	1	LB640	1
6-7	WHT	16	GXL	2368	S642	2	LB641	1
6-8	WHT	14	GXL	302	RL168	4	S642	2

Figure 7-68. Chassis Work Lights Harness - Sheet 2 of 3



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Figure 7-69. Chassis Work Lights Harness - Sheet 3 of 3

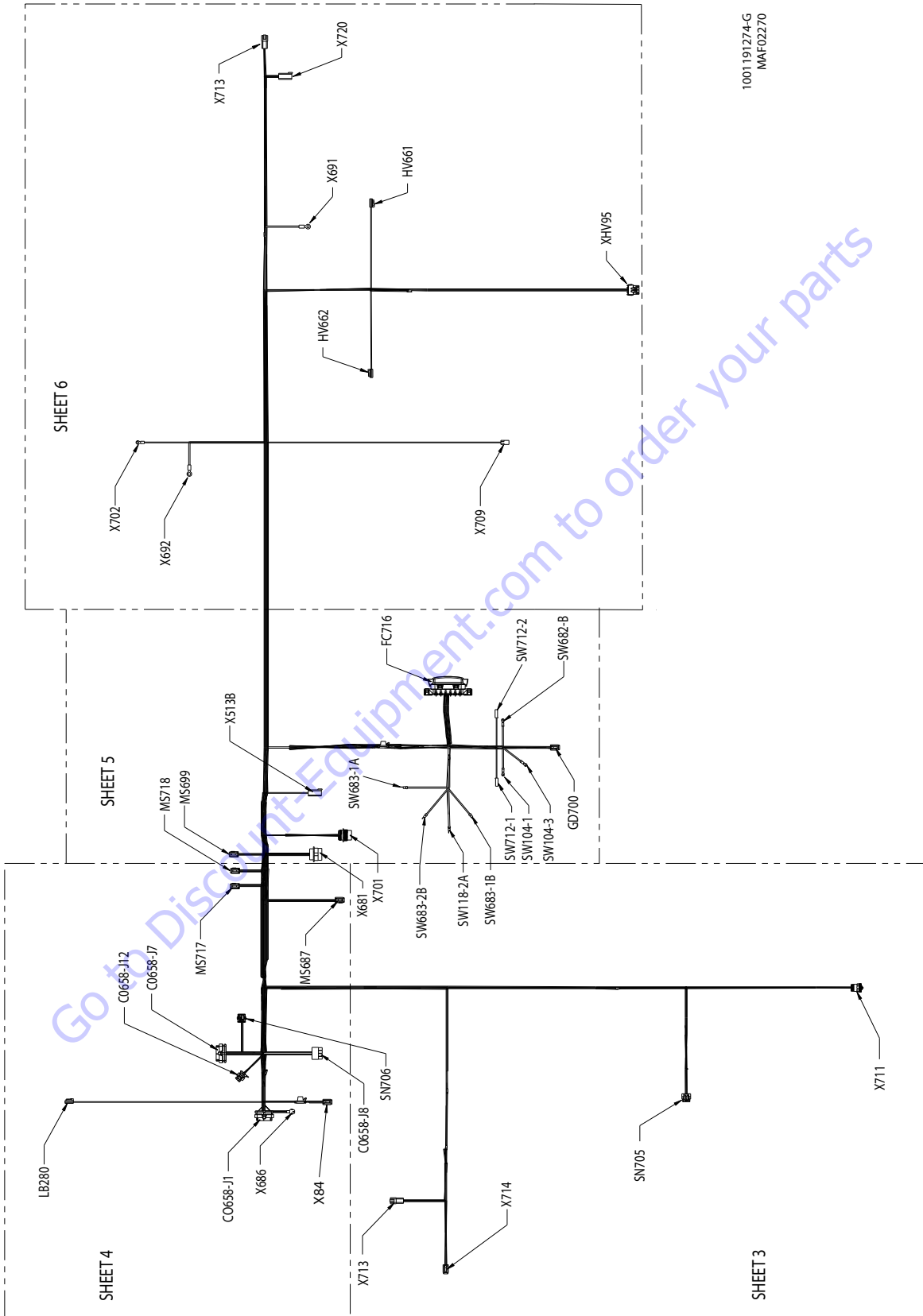


Figure 7-70. 400SC Turntable Harness - Sheet 1 of 14

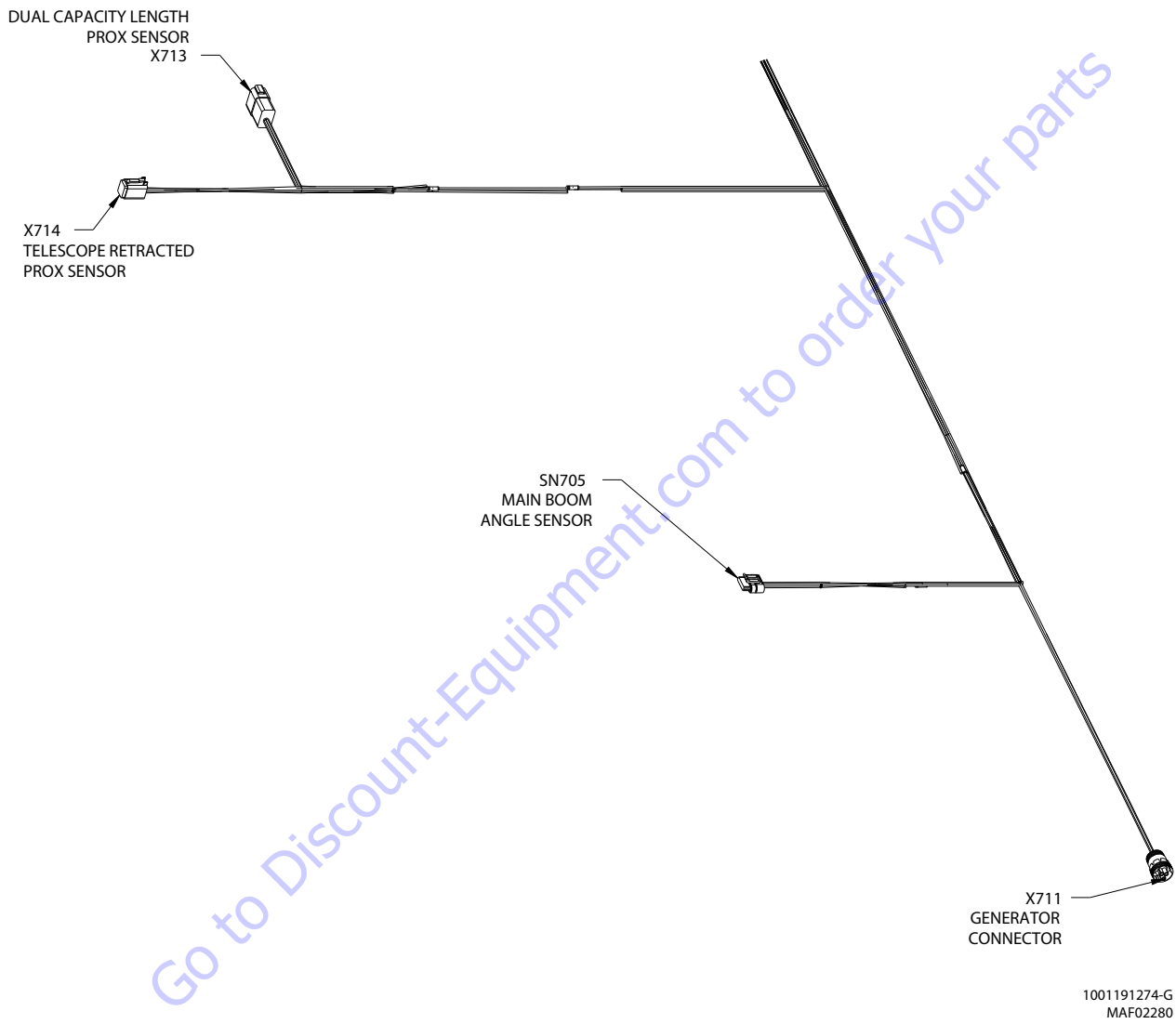


Figure 7-71. 400SC Turntable Harness - Sheet 2 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

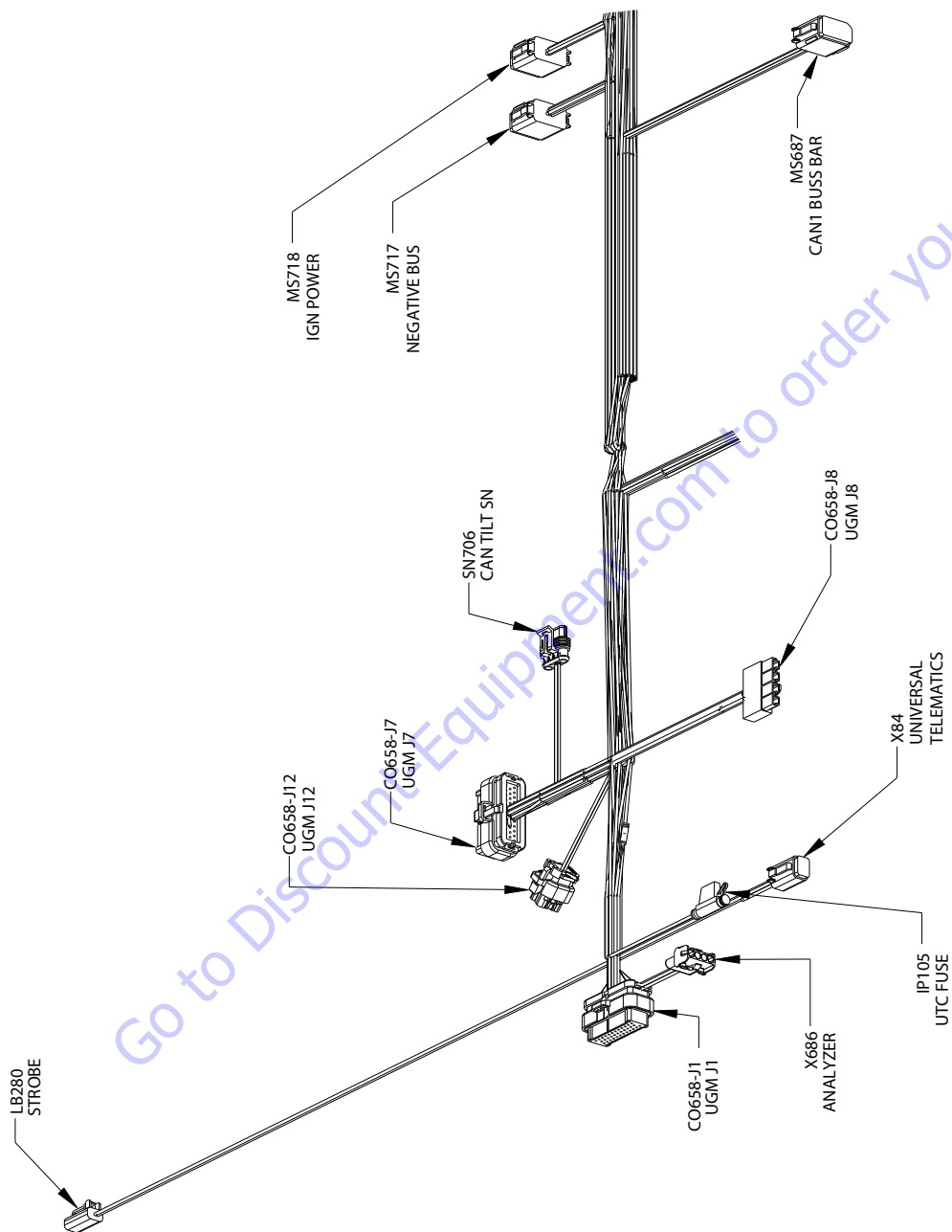
X713 DUAL CAPACITY LENGTH PROX SENSOR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-168 PWR 12V	18 AWG	GXL	S703 (2)
2	BLK	000-40-167 GND	18 AWG	GXL	S704 (2)
3	WHT	4-115 CAPACITY 1	18 AWG	GXL	C0658-J7 (23)
4	WHT	4-114 PWR 12V	18 AWG	GXL	S703 (1)
5	BLK	000-40-98 GND	18 AWG	GXL	S704 (1)
6	WHT	4-167 CAP PROX 2	18 AWG	GXL	C0658-J1 (35)
7					
8					

X711 GENERATOR CONNECTOR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
A	WHT	4-82 GEN IGN	18 AWG	GXL	FC716 (41)
B	WHT	4-74 GEN ON	18 AWG	GXL	C0658-J1 (22)
C	BLK	000-40-161 GEN GND	18 AWG	GXL	MS717 (5)

X714 TELESCOPE RETRACTED PROX SENSOR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
1	WHT	4-111 PWR 12V	18 AWG	GXL	S703 (2)
2	BLK	000-40-77 GND	18 AWG	GXL	S704 (2)
3	WHT	4-110 PROX 1	18 AWG	GXL	C0658-J7 (21)
4	WHT	4-113 PWR 12V	18 AWG	GXL	S703 (2)
5	BLK	000-40-80 GND	18 AWG	GXL	S704 (2)
6	WHT	4-117 PROX 2	18 AWG	GXL	C0658-J1 (34)

SN705 MAIN BOOM ANGLE SENSOR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TO
A	BLK	000-40-78 GND	18 AWG	GXL	S697 (2)
B	WHT	4-106 PWR 5V	18 AWG	GXL	S696 (2)
C	WHT	4-86 BM ANGLE SEN 1	18 AWG	GXL	C0658-J7 (4)
D	WHT	4-87 BM ANGLE SEN 2	18 AWG	GXL	C0658-J7 (7)
E	BLK	000-40-79 GND	18 AWG	GXL	S697 (2)
F	WHT	4-112 PWR 5V	18 AWG	GXL	S696 (2)

Figure 7-72. 400SC Turntable Harness - Sheet 3 of 14



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Figure 7-73. 400SC Turntable Harness - Sheet 4 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

C0658-J7 UGM J7					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1					
2	WHT	4-132 PLAT MODE	18 AWG	GXL	S684 (1)
3	RED	4-169-1 MOD SEL	18 AWG	GXL	FC716 (46)
4	WHT	4-86 BM ANGLE SEN 1	18 AWG	GXL	SN705 (C)
5					
6	WHT	4-133 CAN1 TERM	18 AWG	GXL	C0658-J7 (17)
7	WHT	4-87 BM ANGLE SEN 2	18 AWG	GXL	SN705 (D)
8					
9	BLK	000-40-76 GND	18 AWG	GXL	S697 (1)
10	WHT	4-123 GND	18 AWG	GXL	SN706 (2)
11					
12					
13	YEL	CAN 1 HI	18 AWG	J1939 CABLE	MS687 (12)
14	WHT	4-53 GROUND MODE	18 AWG	GXL	X681 (11)
15	WHT	4-52 FOOT SW	18 AWG	GXL	X681 (6)
16	WHT	4-118 PWR 5V	18 AWG	GXL	S696 (1)
17	WHT	4-133 CAN1 TERM	18 AWG	GXL	C0658-J7 (6)
18					
19	BLK	000-40-13 GND	18 AWG	GXL	FC716 (1)
20					
21	WHT	4-110 PROX 1	18 AWG	GXL	X714 (3)
22					
23	WHT	4-115 CAPACITY 1	18 AWG	GXL	X713 (3)
24	GRN	CAN 1 LO	18 AWG	J1939 CABLE	MS687 (4)
25	BLK	000-40-51 GND	18 AWG	GXL	GD700 (1)
26					
27					
28	BLK	000-40-75 GND	18 AWG	GXL	S704 (1)
29	RED	4-97 PWR	18 AWG	GXL	S87 (1)
30					
31					
32	WHT	4-116 POWER 12V	18 AWG	GXL	X709 (1)
33	WHT	4-119 PWR 12V	18 AWG	GXL	S703 (1)
34	WHT	4-108 VCC	18 AWG	GXL	SN706 (1)
35	WHT	4-92 DOSSW	18 AWG	GXL	X709 (2)

C0658-J1 UGM J1					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1					
2					
3	WHT	4-3 LEFT TRACK DRIVE FORWARD	16 AWG	GXL	XHV95 (1)
4					
5	BLK	000-40-3 GND	18 AWG	GXL	S663 (2)
6	WHT	4-4 LEFT TRACK DRIVE REVERSE	16 AWG	GXL	XHV95 (3)
7					
8					
9	BLK	000-40-162 GND	18 AWG	GXL	SW712-2 (1)
10	WHT	4-94 EMR4 IGNITION	18 AWG	GXL	X719 (1)
11	WHT	4-67 START	16 AWG	GXL	X720 (2)
12	WHT	4-80 GLOW PLUG	18 AWG	GXL	X719 (4)
13	WHT	4-78 AUX PUMP	16 AWG	GXL	X702 (1)
14					
15					
16					
17					
18					
19					
20	WHT	4-2 TWO SPEED	18 AWG	GXL	HV661 (1)
21					
22	WHT	4-74 GEN ON	18 AWG	GXL	X711 (B)
23	WHT	4-1 BRAKE	18 AWG	GXL	HV662 (1)
24					
25					
26					
27					
28	WHT	4-5 POWER	18 AWG	GXL	X686 (1)
29	WHT	4-6 RECEIVE	18 AWG	GXL	X686 (2)
30	WHT	4-7 TRANSMIT	18 AWG	GXL	X686 (3)
31	BLK	000-40-4 GND	18 AWG	GXL	X686 (4)
32	RED	4-76 ALT EXCITE	16 AWG	GXL	X720 (5)
33					
34	WHT	4-117 PROX 2	18 AWG	GXL	X714 (6)
35	WHT	4-167 CAP PROX 2	18 AWG	GXL	X713 (6)

Figure 7-74. 400SC Turntable Harness - Sheet 5 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

C0658-J8 UGM J8					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	000-40-64 BATTGND	16 AWG	GXL	MS717 (1)
1	BLK	000-40-8 MODLGND	10 AWG	GXL	X691 (1)
2	RED	4-35 IGN	12 AWG	GXL	FC716 (32)
3	BLK	000-40-12 PLATFGND	12 AWG	GXL	X681 (16)
4	YEL	4-36 MODLPWR	14 AWG	GXL	MS718 (1)

MS718 IGN POWER					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	YEL	4-36 MODLPWR	14 AWG	GXL	C0658-J8 (4)
2	YEL	4-72 IGN	18 AWG	GXL	FC716 (36)
3	YEL	4-54 STRBLIGHT	18 AWG	GXL	LB280 (1)
4	YEL	4-84 IGN	18 AWG	GXL	X720 (1)
5	YEL	4-81 GENIGN	18 AWG	GXL	FC716 (45)

MS717 NEGATIVE BUS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	1BLK	000-40-64 BATTGND	16 AWG	GXL	C0658-J8 (1)
2					
3	BLK	000-40-14 STRBGND	18 AWG	GXL	LB280 (2)
4	BLK	000-40-11 NEGATIVE	18 AWG	GXL	X701 (A)
5	BLK	000-40-161 GENGND	18 AWG	GXL	X711 (C)
6	BLK	000-40-81	16 AWG	GXL	X691 (1)
7	BLK	000-40-557 GND	18 AWG	GXL	X719 (2)
8	BLK	0040-558 GND	18 AWG	GXL	X84 (2)

X84 UNIVERSAL TELEMATICS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-65 PWR	18 AWG	GXL	S85 (2)
2	BLK	0040-558 GND	18 AWG	GXL	MS717 (8)
3	RED	4-97 IGN	18 AWG	GXL	S87 (1)
4	WHT	4-51-1 PLTFM ENABLE	18 AWG	GXL	IP105 (1)

MS699 CAN2 BUSS BAR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1					
2					
3	GRN	CAN2LO	20 AWG	J1939 CABLE	C0658-J12 (4)
4	GRN	CAN2LO	20 AWG	J1939 CABLE	X720 (4)
5	YEL	CAN2HI	20 AWG	J1939 CABLE	C0658-J12 (3)
6	YEL	CAN2HI	20 AWG	J1939 CABLE	X720 (3)
7	YEL	CAN2HI	20 AWG	J1939 CABLE	X701 (C)
8	YEL	CAN2HI	20 AWG	J1939 CABLE	GD700 (3)
9	GRN	CAN2LO	20 AWG	J1939 CABLE	X701 (D)
10	GRN	CAN2LO	20 AWG	J1939 CABLE	GD700 (4)
11					
12					

MS687 CAN1 BUSS BAR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	YEL	CAN 1 HI	18 AWG	J1939 CABLE	X681 (3)
2					
3	GRN	CAN 1 LO	18 AWG	J1939 CABLE	X681 (2)
4	GRN	CAN 1 LO	18 AWG	J1939 CABLE	C0658-J7 (24)
5					
6					
7					
8					
9					
10	GRN	CAN 1 LO	20 AWG	J1939 CABLE	SN706 (4)
11	YEL	CAN 1 HI	20 AWG	J1939 CABLE	SN706 (3)
12	YEL	CAN 1 HI	18 AWG	J1939 CABLE	C0658-J7 (13)

Figure 7-75. 400SC Turntable Harness - Sheet 6 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X686 ANALYZER					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-5 PWR	18 AWG	GXL	C0658-J1 (28)
2	WHT	4-6 RECEIVE	18 AWG	GXL	C0658-J1 (29)
3	WHT	4-7 TRANSMIT	18 AWG	GXL	C0658-J1 (30)
4	BLK	000-40-4 GND	18 AWG	GXL	C0658-J1 (31)

C0658-J12 UGM J12					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1					
2					
3	YEL	CAN2 HI	20 AWG	J1939 CABLE	MS699 (5)
4	GRN	CAN2 LO	20 AWG	J1939 CABLE	MS699 (3)
5					
6	WHT	4-96 CAN2 TERM	18 AWG	GXL	C0658-J12 (7)
7	WHT	4-96 CAN2 TERM	18 AWG	GXL	C0658-J12 (6)
8	WHT	4-163 MSSO	18 AWG	GXL	SW712-1 (1)

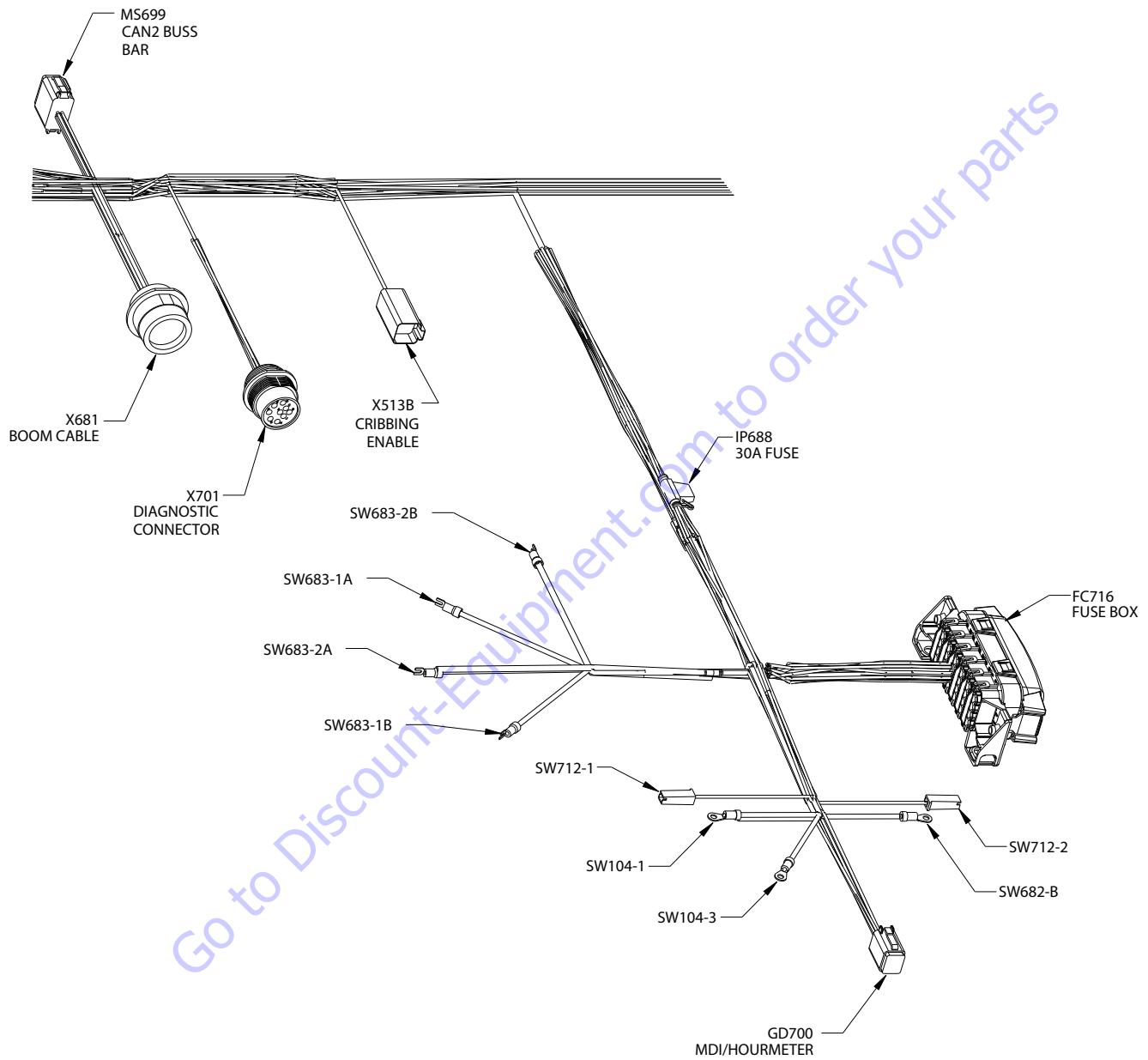
SN706 CAN TILT SN					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-108 VCC	18 AWG	GXL	C0658-J7 (34)
2	WHT	4-123 GND	18 AWG	GXL	C0658-J7 (10)
3	YEL	CAN 1 HI	20 AWG	J1939 CABLE	MS687 (11)
4	GRN	CAN 1 LO	20 AWG	J1939 CABLE	MS687 (10)

LB280 STROBE LIGHT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	YEL	4-54 STRB LIGHT	18 AWG	GXL	MS718 (3)
2	BLK	000-40-14 STRB GND	18 AWG	GXL	MS717 (3)

Ip105					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-51-1 PLTFM ENABLE	18 AWG	GXL	X84 (4)
2	WHT	4-51 PLTFM ENABLE	18 AWG	GXL	SW104-3 (1)

Figure 7-76. 400SC Turntable Harness - Sheet 7 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS



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Figure 7-77. 400SC Turntable Harness - Sheet 8 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X701 DIAGNOSTIC CONNECTOR					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
A	BLK	000-40-11 NEGATIVE	18 AWG	GXL	MS717 (4)
B	RED	4-65 PWR	18 AWG	GXL	S85 (1)
C	YEL	CAN2 HI	20 AWG	J1939 CABLE	MS699 (7)
D	GRN	CAN2 LO	20 AWG	J1939 CABLE	MS699 (9)
E					
F					
G					
H	WHT	4-66 IGN	18 AWG	GXL	FC716 (40)
J					

SW683-1BMTB EMS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1B	RED	4-46	12 AWG	GXL	SW682-B (1)

FC716 FUSE BOX					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	000-40-13 GND	18 AWG	GXL	C0658-J7 (19)
2	RED	4-166	12 AWG	GXL	S715 (2)
3					
4					
5					
6					
7					
8					
9	RED	4-37 EMS	12 AWG	GXL	SW683-1A (1A)
10	WHT	4-170	18 AWG	GXL	S710 (2)
11					
12					
13					
14					
15					
16					
17					

FC716 FUSE BOX					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
18					
19					
20					
21					
22					
23					
24					
25	RED	4-39	18 AWG	GXL	S710 (1)
26	WHT	4-38	18 AWG	GXL	S710 (1)
27					
28	RED	4-350	12 AWG	GXL	S715 (1)
29	RED	4-40	12 AWG	GXL	SW104-1 (1)
30	WHT	4-41	18 AWG	GXL	S684 (2)
31					
32	RED	4-35 IGN	12 AWG	GXL	C0658-J8 (2)
33	RED	4-550	12 AWG	GXL	S715 (1)
34	WHT	4-552	16 AWG	GXL	X681 (9)
35	WHT	4-50	18 AWG	GXL	SW683-2A (2A)
36	YEL	4-72 IGN	18 AWG	GXL	MS718 (2)
37	RED	4-71	12 AWG	GXL	X681 (12)
38	RED	4-51	12 AWG	GXL	SW104-3 (1)
39	WHT	4-65	18 AWG	GXL	S85 (1)
40	WHT	4-66 IGN	18 AWG	GXL	X701 (H)
41	WHT	4-82 GEN IGN	18 AWG	GXL	X711 (A)
42	RED	4-169 MODE SEL	12 AWG	GXL	SW104-1 (1)
43					
44					
45	YEL	4-81 GEN IGN	18 AWG	GXL	MS718 (5)
46	RED	4-169-1 MOD SEL	18 AWG	GXL	C0658-J7 (3)
47	RED	4-563 LIGHT OPT	18 AWG	GXL	S715 (2)
48					

Figure 7-78. 400SC Turntable Harness - Sheet 9 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

SW712-1MSSO					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-163 MSSO	18 AWG	GXL	C0658-J12 (8)

IP688 30A FUSE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-79	10 AWG	GXL	S685 (2)
2	RED	4-49 B+ AUX PMP	10 AWG	GXL	X692 (1)

GD700 MDI/HOURMETER					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	000-40-51 GND	18 AWG	GXL	C0658-J7 (25)
2	RED	4-97 PWR	18 AWG	GXL	S87 (2)
3	YEL	CAN2HI	20 AWG	J1939 CABLE	MS699 (8)
4	GRN	CAN2LO	20 AWG	J1939 CABLE	MS699 (10)
5					
6					

SW683-2B MTB EMS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
2B	RED	4-47 SW683-2B	10 AWG	GXL	S685 (1)

X513B CRIBBING ENABLE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	CF 000-40-43	16 AWG	GXL	S690 (1)
2					
3					
4					
5					

SW683-1AMTB EMS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1A	RED	4-37 EMS	12 AWG	GXL	FC716 (9)

SW682-B MTB SELECT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-46	12 AWG	GXL	SW683-1B (1B)

SW712-2 MSSO					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	000-40-162 GND	18 AWG	GXL	C0658-J1 (9)

Figure 7-79. 400SC Turntable Harness - Sheet 10 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

SW104-3 MTB SELECT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-51	12 AWG	GXL	FC716(38)
1	WHT	4-51 PLTFMENABLE	18 AWG	GXL	IP105(2)

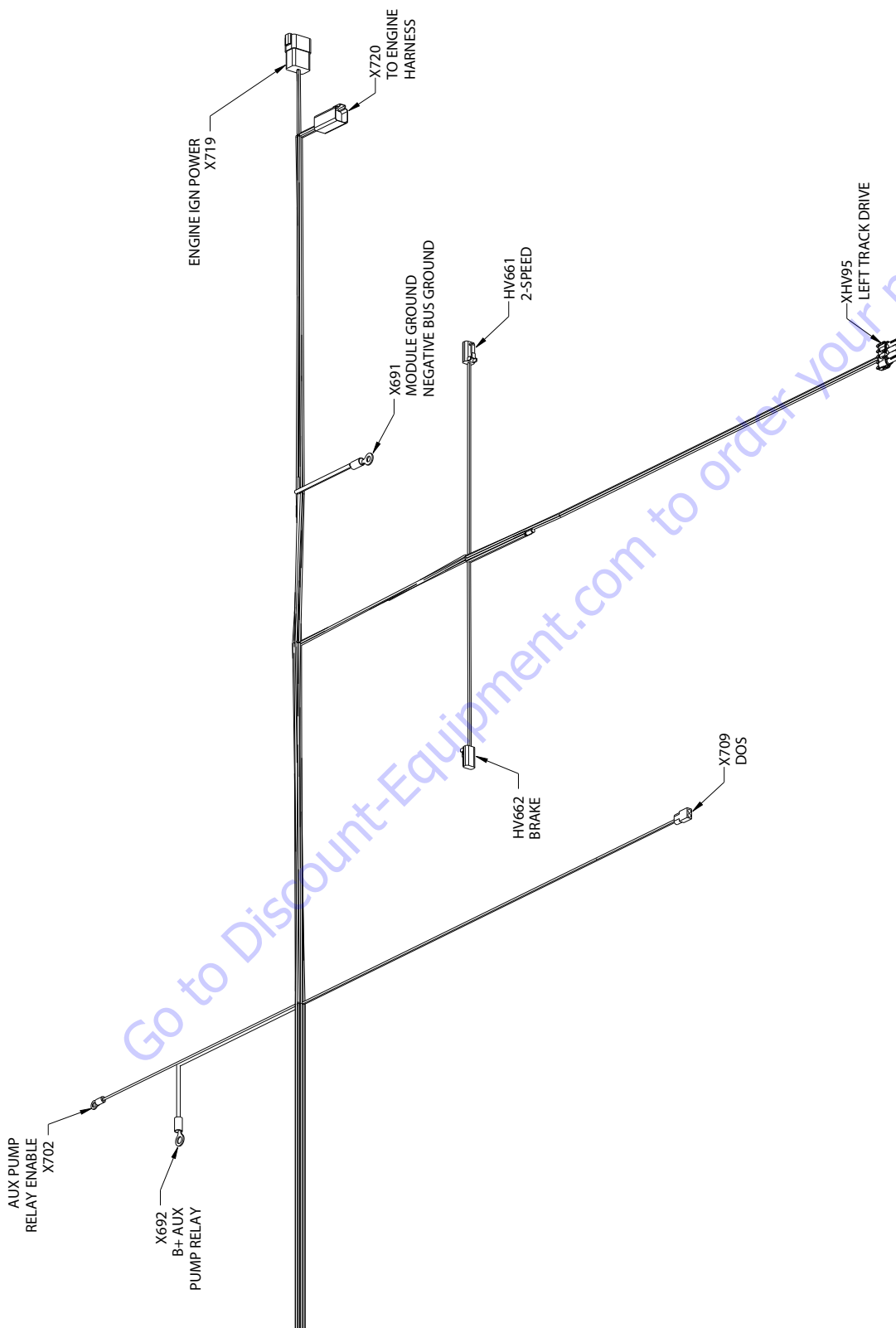
SW683-2A MTB EMS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
2A	RED	4-175 SW683-2A	10 AWG	GXL	S685(1)
2A	WHT	4-50	18 AWG	GXL	FC716(35)

SW104-1 MTB SELECT					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-169 MODESEL	12 AWG	GXL	FC716(42)
1	RED	4-40	12 AWG	GXL	FC716(29)

X681 BOOM CABLE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1					
2	GRN	CAN 1 LO	18 AWG	J1939 CABLE	MS687(3)
3	YEL	CAN 1 HI	18 AWG	J1939 CABLE	MS687(1)
4	WHT	4-43 PLTFEMS	18 AWG	GXL	S684(2)
5					
6	WHT	4-52 FOOT SW	18 AWG	GXL	C0658-J7(15)
7					
8					
9	WHT	4-552	16 AWG	GXL	FC716(34)
10					
11	WHT	4-53 GROUND MODE	18 AWG	GXL	C0658-J7(14)
12	RED	4-71	12 AWG	GXL	FC716(37)
13					
14					
15					
16	BLK	000-40-12 PLATFGND	12 AWG	GXL	C0658-J8(3)
17					
18					
19					

Figure 7-80. 400SC Turntable Harness - Sheet 11 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS



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Figure 7-81. 400SC Turntable Harness - Sheet 12 of 14

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

X720 TO ENGINE HARNESS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	YEL	4-84 IGN	18 AWG	GXL	MS718 (4)
2	WTH	4-67 START	16 AWG	GXL	C0658-J1 (11)
3	YEL	CAN2 HI	20 AWG	J1939 CABLE	MS699 (6)
4	GRN	CAN2 LO	20 AWG	J1939 CABLE	MS699 (4)
5	RED	4-76 ALT EXCITE	16 AWG	GXL	C0658-J1 (32)
6					

X691 NEGATIVE BUS MODULE GND					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	BLK	000-40-8 MODL GND	10 AWG	GXL	C0658-J8 (1)
1	BLK	000-40-81	16 AWG	GXL	MS717 (6)

X702 AUX PUMP RELAY ENABLE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-78 AUX PUMP	16 AWG	GXL	C0658-J1 (13)

X719 ENGINE IGN POWER					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-94 EMR4 IGNITION	18 AWG	GXL	C0658-J1 (10)
2	BLK	000-40-557 GND	18 AWG	GXL	MS717 (7)
3					
4	WHT	4-80 GLOW PLUG	18 AWG	GXL	C0658-J1 (12)
5					
6					
7					
8					

XHV95 LEFT TRACK DRIVE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
A	BLK	000-40-40 CF	16 AWG	GXL	S690 (2)
B	WHT	4-4 LEFT TRACK DRIVE REVERSE	16 AWG	GXL	C0658-J1 (6)
C	WHT	4-3 LEFT TRACK DRIVE FORWARD	16 AWG	J1939 CABLE	C0658-J1 (3)
D	BLK	000-40-41 CF	16 AWG	J1939 CABLE	S690 (2)

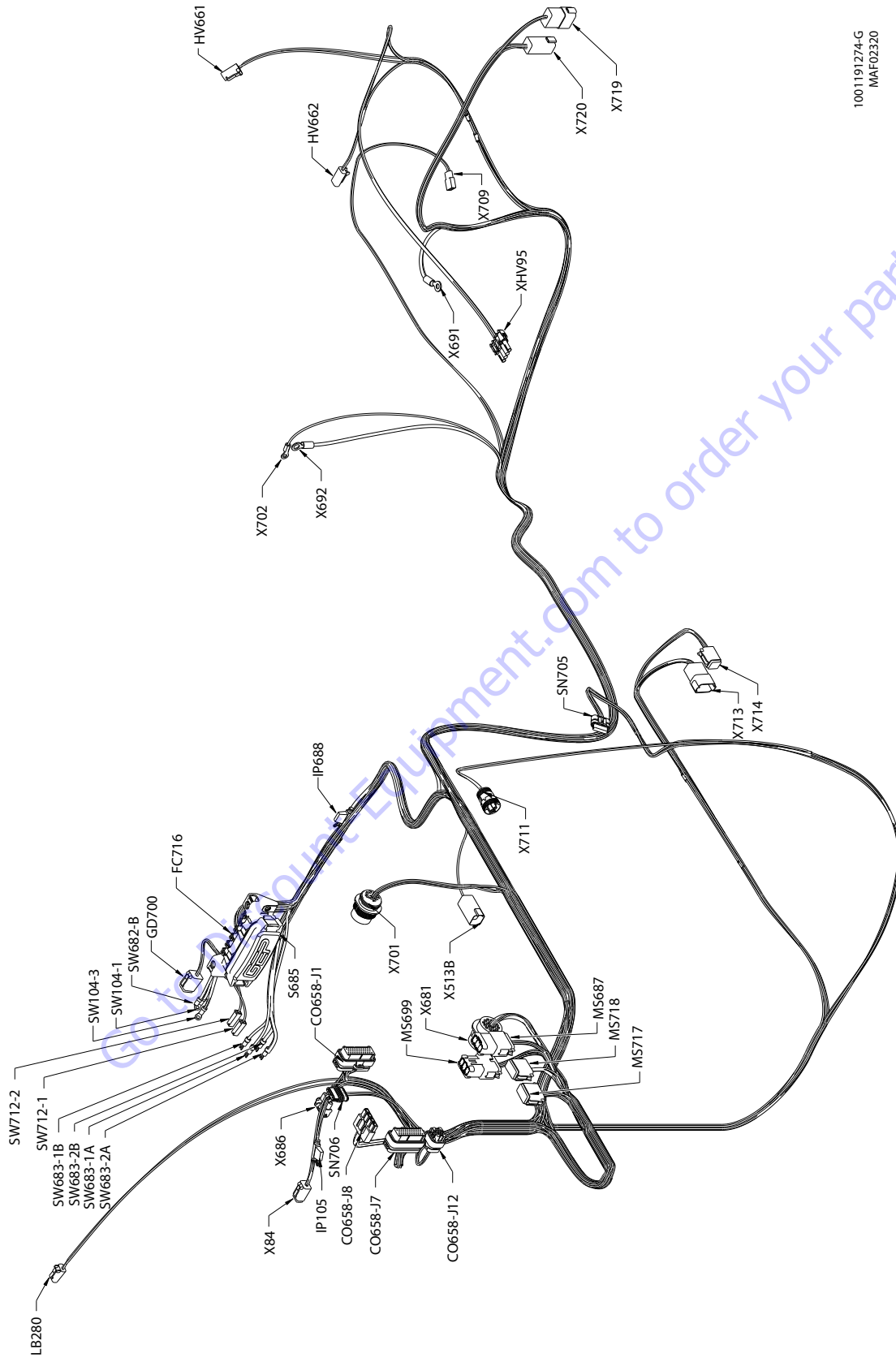
X709 DOS					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-116 POWER 12V	18 AWG	GXL	C0658-J7 (32)
2	WHT	4-92 DOS SW	18 AWG	GXL	C0658-J7 (35)

HV661 2-SPEED					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-2 TWO SPEED	18 AWG	GXL	C0658-J1 (20)
2	BLK	000-40-2 GND	18 AWG	GXL	S663 (1)

X692 B+ AUX PUMP RELAY					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	RED	4-49 B+ AUX PMP	10 AWG	GXL	IP688 (2)

HV662 BRAKE					
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	To
1	WHT	4-1 BRAKE	18 AWG	GXL	C0658-J1 (23)
2	BLK	000-40-1 GND	18 AWG	GXL	S663 (1)

Figure 7-82. 400SC Turntable Harness - Sheet 13 of 14



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Figure 7-83. 400SC Turntable Harness - Sheet 14 of 14

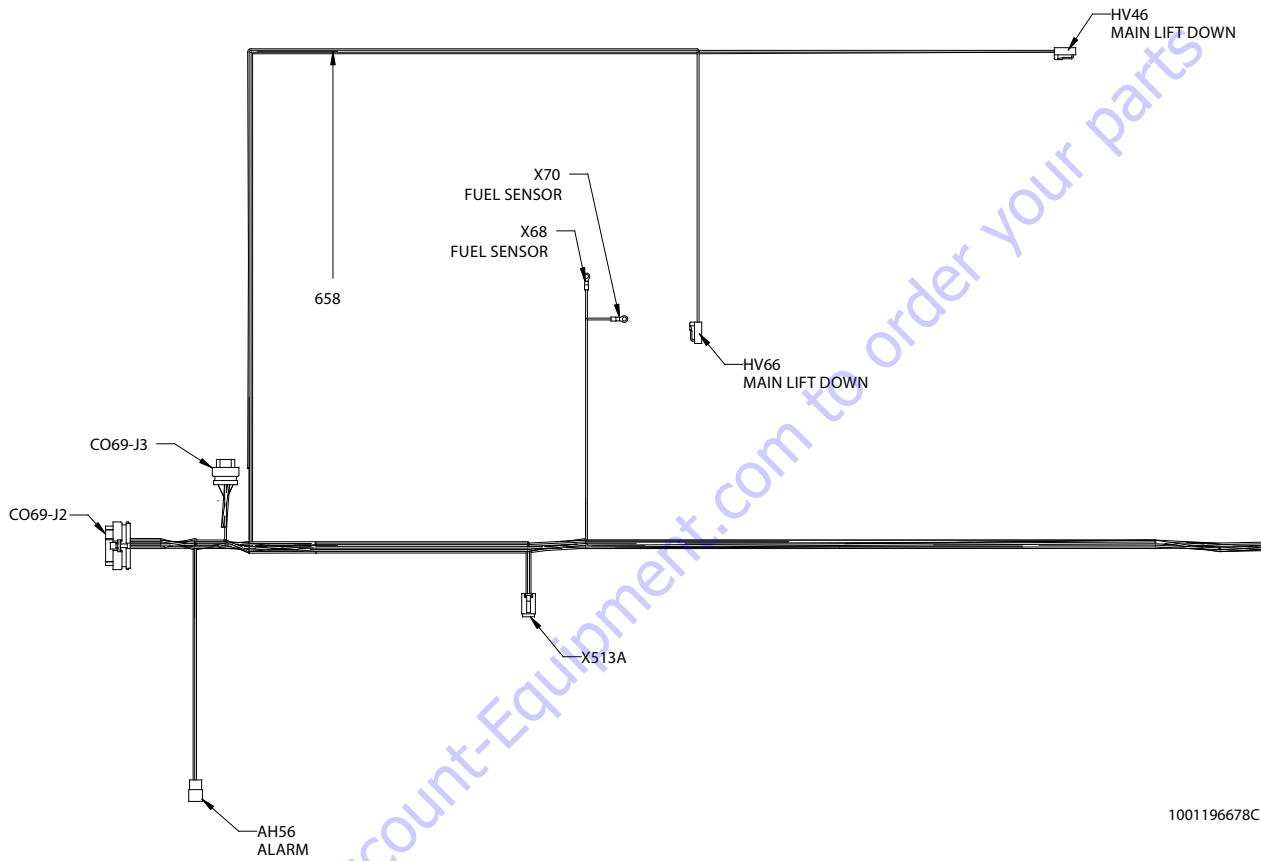


Figure 7-84. 400SC Main Valve Harness - Sheet 1 of 6

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

CO69-J2						
CONNECTOR PART NUMBER: 4460875						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1					4460905	
2					4460905	
3					4460905	
4	WHT	4-19 MAIN TELE IN	18 AWG	GXL	4460871	HV38 (1)
5	WHT	4-8 LEVEL UP	18 AWG	GXL	4460871	HV51 (1)
6	BLK	000-40-45	18 AWG	GXL	4460871	X70 (1)
7	WHT	4-11 LEVEL DOWN	18 AWG	GXL	4460871	HV50 (1)
8	WHT	4-21 RIGHT TRACK DRIVE REVERSE	16 AWG	GXL	4460871	X80 (C)
9	WHT	4-103 MAIN LIFT DOWN AUX	18 AWG	GXL	4460871	HV66 (1)
10	WHT	4-9 ROTATE LEFT	18 AWG	GXL	4460871	HV53 (1)
11	WHT	4-24 MAIN LIFT UP	18 AWG	GXL	4460871	HV45 (1)
12	WHT	4-12 JIB UP	18 AWG	GXL	4460871	HV33 (1)
13	WHT	4-14 MAIN DUMP	18 AWG	GXL	4460871	HV37 (1)
14	BLK	000-40-7 GND	18 AWG	GXL	4460871	S55 (2)
15					4460905	
16	WHT	4-20 MAIN TELE OUT	18 AWG	GXL	4460871	HV39 (1)
17	BLK	000-40-5 GND	18 AWG	GXL	4460871	S54 (2)
18					4460905	
19	WHT	5-3 RIGHT TRACK DRIVE FORWARD	16 AWG	GXL	4460871	X80 (B)
20					4460905	
21	WHT	4-10 ROTATE RIGHT	18 AWG	GXL	4460871	HV52 (1)
22	WHT	4-104 MAIN LIFT DOWN	18 AWG	GXL	4460871	HV46 (1)
23	WHT	4-13 JIB DOWN	18 AWG	GXL	4460871	HV36 (1)
24					4460905	
25	WHT	4-75 FUEL SENSOR	18 AWG	GXL	4460871	X68 (1)
26	WHT	4-102 HEAD & TAIL LIGHTS	18 AWG	GXL	4460871	X513A (2)
27	WHT	4-29 ALRM	18 AWG	GXL	4460871	AH56 (B)
28					4460905	
29	BLK	000-40-10ALRM GND	18 AWG	GXL	4460871	AH56 (C)
30	BLK	000-40-25 GND	18 AWG	GXL	4460871	HV37 (2)
31	WHT	4-23 FLOW CONTROL	18 AWG	GXL	4460871	HV44 (1)
32					4460905	
33					4460905	
34	WHT	4-27 SWING LEFT	18 AWG	GXL	4460871	HV48 (1)
35	WHT	4-26 SWING RIGHT	18 AWG	GXL	4460871	HV47 (1)

X513A						
CONNECTOR PART NUMBER: 4460894						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	000-40-44 CF	18 AWG	GXL	4460465	CO69-J3 (1)
2	WHT	4-102 HEAD & TAIL LIGHTS	18 AWG	GXL	4460465	CO69-J2 (26)
3	WHT	4-105 CRIBBING	18 AWG	GXL	4460465	CO69-J3 (9)
4					4460466	
5					4460466	
6					4460466	

AH56 ALARM						
CONNECTOR PART NUMBER: 4460539						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
A	WHT	4-30 ALRM	18 AWG	GXL	4460465	CO69-J3 (7)
B	WHT	4-29 ALRM	18 AWG	GXL	4460465	CO69-J2 (27)
C	BLK	000-40-10 ALRM GND	18 AWG	GXL	4460465	CO69-J2 (29)

CO69-J3						
CONNECTOR PART NUMBER: 4460872						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	000-40-44 CF	18 AWG	GXL	4460871	X513A (1)
2	BLK	000-50-54 RIGHT TRACK CF	16 AWG	GXL	4460871	S65 (1)
3					4460905	
4	BLK	000-40-38 CF	18 AWG	GXL	4460871	S58 (2)
5	BLK	000-40-49 AUX DOWN CF	16 AWG	GXL	4460871	HV66 (2)
6	BLK	000-40-33 CF	18 AWG	GXL	4460871	HV44 (2)
7	WHT	4-30 ALRM	18 AWG	GXL	4460871	AH56 (A)
8					4460905	
9	WHT	4-105 CRIBBING	18 AWG	GXL	4460871	X513A (3)
10					4460905	
11					4460905	
12					4460905	
13					4460905	
14	BLK	000-40-35 CF	18 AWG	GXL	4460871	S57 (2)

X68 FUEL SENSOR						
CONNECTOR PART NUMBER: 4460313						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	4-75 FUEL SENSOR	18 AWG	GXL		CO69-J2 (25)

X70 FUEL SENSOR						
CONNECTOR PART NUMBER: 4460313						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	BLK	000-40-45	18 AWG	GXL		CO69-J2 (6)

HV66 MAIN LIFT DOWN						
CONNECTOR PART NUMBER: 4460891						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	4-103 MAIN LIFT DOWN AUX	18 AWG	GXL	4460465	CO69-J2 (9)
2	BLK	000-40-49 AUX DOWN CF	16 AWG	GXL	4460465	CO69-J3 (5)

HV46 MAIN LIFT DOWN						
CONNECTOR PART NUMBER: 4460891						
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	TO
1	WHT	4-104 MAIN LIFT DOWN	18 AWG	GXL	4460465	CO69-J2 (22)
2	BLK	000-40-63 CF	18 AWG	GXL	4460465	S57 (2)

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Figure 7-85. 400SC Main Valve Harness - Sheet 2 of 6

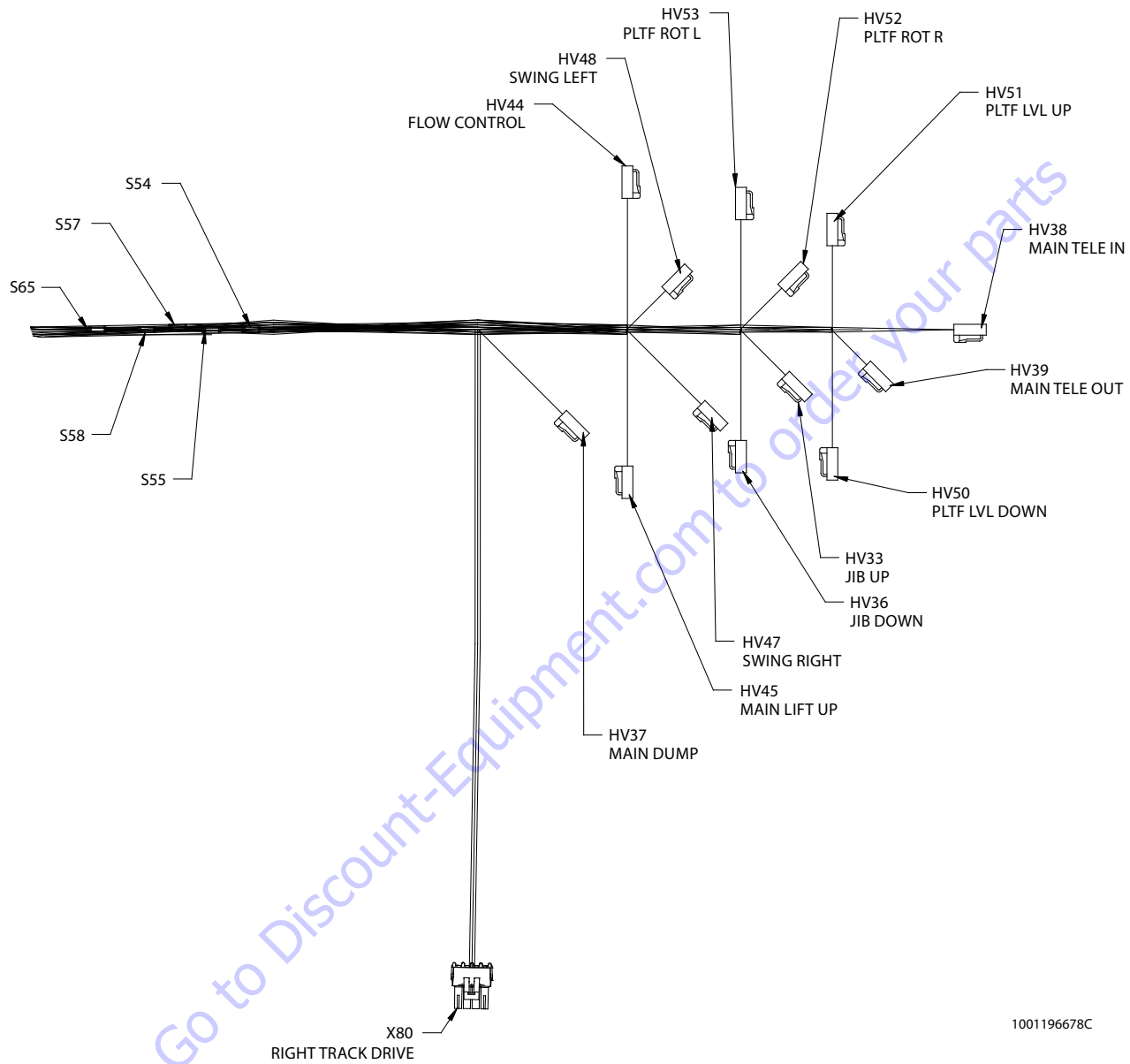


Figure 7-86. 400SC Main Valve Harness - Sheet 3 of 6

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

S65							
CONNECTOR PART NUMBER: SPLICE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	000-50-50 CF	16 AWG	GXL	N/A		X80 (A)
1	BLK	000-50-51 CF	16 AWG	GXL	N/A		X80 (D)
2	BLK	000-50-54 RIGHT TRACK CF	16 AWG	GXL	N/A		CO69-J2 (2)

S58							
CONNECTOR PART NUMBER: SPLICE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	000-40-37 CF	18 AWG	GXL	N/A		HV47 (2)
1	BLK	000-40-39 CF	18 AWG	GXL	N/A		HV48 (2)
2	BLK	000-40-38 CF	18 AWG	GXL	N/A		CO69-J3 (4)

S57							
CONNECTOR PART NUMBER: SPLICE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	000-40-34 CF	18 AWG	GXL	N/A		HV45 (2)
2	BLK	000-40-35 CF	18 AWG	GXL	N/A		CO69-J3 (14)
2	BLK	000-40-63 CF	18 AWG	GXL	N/A		HV46 (2)

S55							
CONNECTOR PART NUMBER: SPLICE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	000-40-21	18 AWG	GXL	N/A		HV39 (2)
1	BLK	000-40-22	18 AWG	GXL	N/A		HV51 (2)
1	BLK	000-40-30	18 AWG	GXL	N/A		HV50 (2)
1	BLK	000-40-31	18 AWG	GXL	N/A		HV38 (2)
2	BLK	000-40-7 GND	18 AWG	GXL	N/A		CO69-J2 (14)

S54							
CONNECTOR PART NUMBER: SPLICE							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	BLK	000-40-19	18 AWG	GXL	N/A		HV53 (2)
1	BLK	000-40-20	18 AWG	GXL	N/A		HV52 (2)
1	BLK	000-40-23	18 AWG	GXL	N/A		HV33 (2)
1	BLK	000-40-24	18 AWG	GXL	N/A		HV36 (2)
2	BLK	000-40-5 GND	18 AWG	GXL	N/A		CO69-J2 (17)

X80 RIGHT TRACK DRIVE							
CONNECTOR PART NUMBER: 4460460							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
A	BLK	000-50-50 CF	16 AWG	GXL	4460457	4460458	565 (1)
B	WHT	4-21 RIGHT TRACK DRIVE REVERSE	16 AWG	GXL	4460457	4460458	CO69-J2 (8)
C	WHT	5-3 RIGHT TRACK DRIVE FORWARD	16 AWG	GXL	4460457	4460458	CO69-J2 (19)
D	BLK	000-50-51 CF	16 AWG	GXL	4460457	4460458	565 (1)

HV37 MAIN DUMP							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-14 MAIN DUMP	18 AWG	GXL	4460465		CO69-J2 (13)
2	BLK	000-40-25 GND	18 AWG	GXL	4460465		CO69-J2 (30)

HV45 MAIN LEFT UP							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-24 MAIN LEFT UP	18 AWG	GXL	4460465		CO69-J2 (11)
2	BLK	000-40-34 CF	18 AWG	GXL	4460465		557 (1)

HV47 SWING RIGHT							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-26 SWING RIGHT	18 AWG	GXL	4460465		CO69-J2 (35)
2	BLK	000-40-37 CF	18 AWG	GXL	4460465		558 (1)

HV36 JIB DOWN							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-13 JIB DOWN	18 AWG	GXL	4460465		CO69-J2 (23)
2	BLK	000-40-24	18 AWG	GXL	4460465		554 (2)

HV33 JIB UP							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-12 JIB UP	18 AWG	GXL	4460465		CO69-J2 (12)
2	BLK	000-40-23	18 AWG	GXL	4460465		554 (1)

HV44 FLOW CONTROL							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-23 FLOW CONTROL	18 AWG	GXL	4460465		CO69-J2 (31)
2	BLK	000-40-33 CF	18 AWG	GXL	4460465		CO69-J3 (6)

HV48 SWING LEFT							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-27 SWING LEFT	18 AWG	GXL	4460465		CO69-J2 (34)
2	BLK	000-40-39 CF	18 AWG	GXL	4460465		558 (1)

HV53 PLTF ROT L							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-9 ROTATE LEFT	18 AWG	GXL	4460465		CO69-J2 (10)
2	BLK	000-40-19	18 AWG	GXL	4460465		554 (1)

HV52 PLTF ROT R							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-10 ROTATE RIGHT	18 AWG	GXL	4460465		CO69-J2 (21)
2	BLK	000-40-20	18 AWG	GXL	4460465		554 (1)

HV51 PLTF LVL UP							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-8 LEVEL UP	18 AWG	GXL	4460465		CO69-J2 (5)
2	BLK	000-40-22	18 AWG	GXL	4460465		555 (1)

HV38 MAIN TELE IN							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-19 MAIN TELE IN	18 AWG	GXL	4460465		CO69-J2 (4)
2	BLK	000-40-31	18 AWG	GXL	4460465		555 (1)

HV39 MAIN TELE OUT							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-20 MAIN TELE OUT	18 AWG	GXL	4460465		CO69-J2 (16)
2	BLK	000-40-21	18 AWG	GXL	4460465		555 (1)

HV50 PLTF LVL DOWN							
CONNECTOR PART NUMBER: 4460891							
CONN POS	WIRE COLOR	WIRE LABEL	GAUGE	JACKET	TERMINAL P/N	SEAL P/N	TO
1	WHT	4-11 LEVEL DOWN	18 AWG	GXL	4460465		CO69-J2 (7)
2	BLK	000-40-30	18 AWG	GXL	4460465		555 (2)

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Figure 7-87. 400SC Main Valve Harness - Sheet 4 of 6

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

WIRE NO	COLOR	WIRE GAUGE	JACKET	LENGTH (mm)	FROM		TO	
					REFERENCE	PIN	REFERENCE	PIN
000-40-10 ALRM GND	BLK	18	GXL	412	AH56	C	CO69-J2	29
000-40-19	BLK	18	GXL	536	S54	1	HV53	2
000-40-20	BLK	18	GXL	488	HV52	2	S54	1
000-40-21	BLK	18	GXL	597	HV39	2	S55	1
000-40-22	BLK	18	GXL	629	HV51	2	S55	1
000-40-23	BLK	18	GXL	494	HV33	2	S54	1
000-40-24	BLK	18	GXL	539	HV36	2	S54	1
000-40-25 GND	BLK	18	GXL	1991	HV37	2	CO69-J2	30
000-40-30	BLK	18	GXL	659	HV50	2	S55	1
000-40-31	BLK	18	GXL	665	HV38	2	S55	1
000-40-33 CF	BLK	18	GXL	2041	HV44	2	CO69-J3	6
000-40-34 CF	BLK	18	GXL	529	HV45	2	S57	1
000-40-35 CF	BLK	18	GXL	1531	CO69-J3	14	S57	2
000-40-37 CF	BLK	18	GXL	525	HV47	2	S58	1
000-40-38 CF	BLK	18	GXL	1506	CO69-J3	4	S58	2
000-40-39 CF	BLK	18	GXL	490	HV48	2	S58	1
000-40-44 CF	BLK	18	GXL	553	X513A	1	CO69-J3	1
000-40-45	BLK	18	GXL	960	X70	1	CO69-J2	6
000-40-49 AUX DOWN CF	BLK	16	GXL	1709	CO69-J3	5	HV66	2
000-40-5 GND	BLK	18	GXL	1668	S54	2	CO69-J2	17
000-40-63 CF	BLK	18	GXL	3000	HV46	2	S57	2
000-40-7 GND	BLK	18	GXL	1636	CO69-J2	14	S55	2
000-50-50 CF	BLK	16	GXL	902	S65	1	X80	A
000-50-51 CF	BLK	16	GXL	906	X80	D	S65	1
000-50-54 RIGHT TRACK CF	BLK	16	GXL	1455	CO69-J3	2	S65	2
4-102 HEAD & TAIL LIGHTS	WHT	18	GXL	626	X513A	2	CO69-J2	26
4-103 MAIN LIFT DOWN AUX	WHT	18	GXL	1791	HV66	1	CO69-J2	9
4-104 MAIN LIFT DOWN	WHT	18	GXL	1908	HV46	1	CO69-J2	22
4-105 CRIBBING	WHT	18	GXL	544	X513A	3	CO69-J3	9
4-10 ROTATE RIGHT	WHT	18	GXL	2160	HV52	1	CO69-J2	21
4-11 LEVEL DOWN	WHT	18	GXL	2303	HV50	1	CO69-J2	7
4-12 JIB UP	WHT	18	GXL	2166	HV33	1	CO69-J2	12
4-13 JIB DOWN	WHT	18	GXL	2219	HV36	1	CO69-J2	23
4-14 MAIN DUMP	WHT	18	GXL	1985	HV37	1	CO69-J2	13
4-19 MAIN TELE IN	WHT	18	GXL	2305	HV38	1	CO69-J2	4
4-20 MAIN TELE OUT	WHT	18	GXL	2237	HV39	1	CO69-J2	16
4-21 RIGHT TRACK DRIVE REVERSE	WHT	16	GXL	2435	X80	B	CO69-J2	8
4-23 FLOW CONTROL	WHT	18	GXL	2134	HV44	1	CO69-J2	31
4-24 MAIN LIFT UP	WHT	18	GXL	2144	HV45	1	CO69-J2	11
4-26 SWING RIGHT	WHT	18	GXL	2110	HV47	1	CO69-J2	35
4-27 SWING LEFT	WHT	18	GXL	2054	HV48	1	CO69-J2	34
4-29 ALRM	WHT	18	GXL	426	AH56	B	CO69-J2	27
4-30 ALRM	WHT	18	GXL	460	AH56	A	CO69-J3	7
4-75 FUEL SENSOR	WHT	18	GXL	992	X68	1	CO69-J2	25
4-8 LEVEL UP	WHT	18	GXL	2270	HV51	1	CO69-J2	5
4-9 ROTATE LEFT	WHT	18	GXL	2197	HV53	1	CO69-J2	10
5-3 RIGHT TRACK DRIVE FORWARD	WHT	16	GXL	2432	X80	C	CO69-J2	19

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Figure 7-88. 400SC Main Valve Harness - Sheet 5 of 6

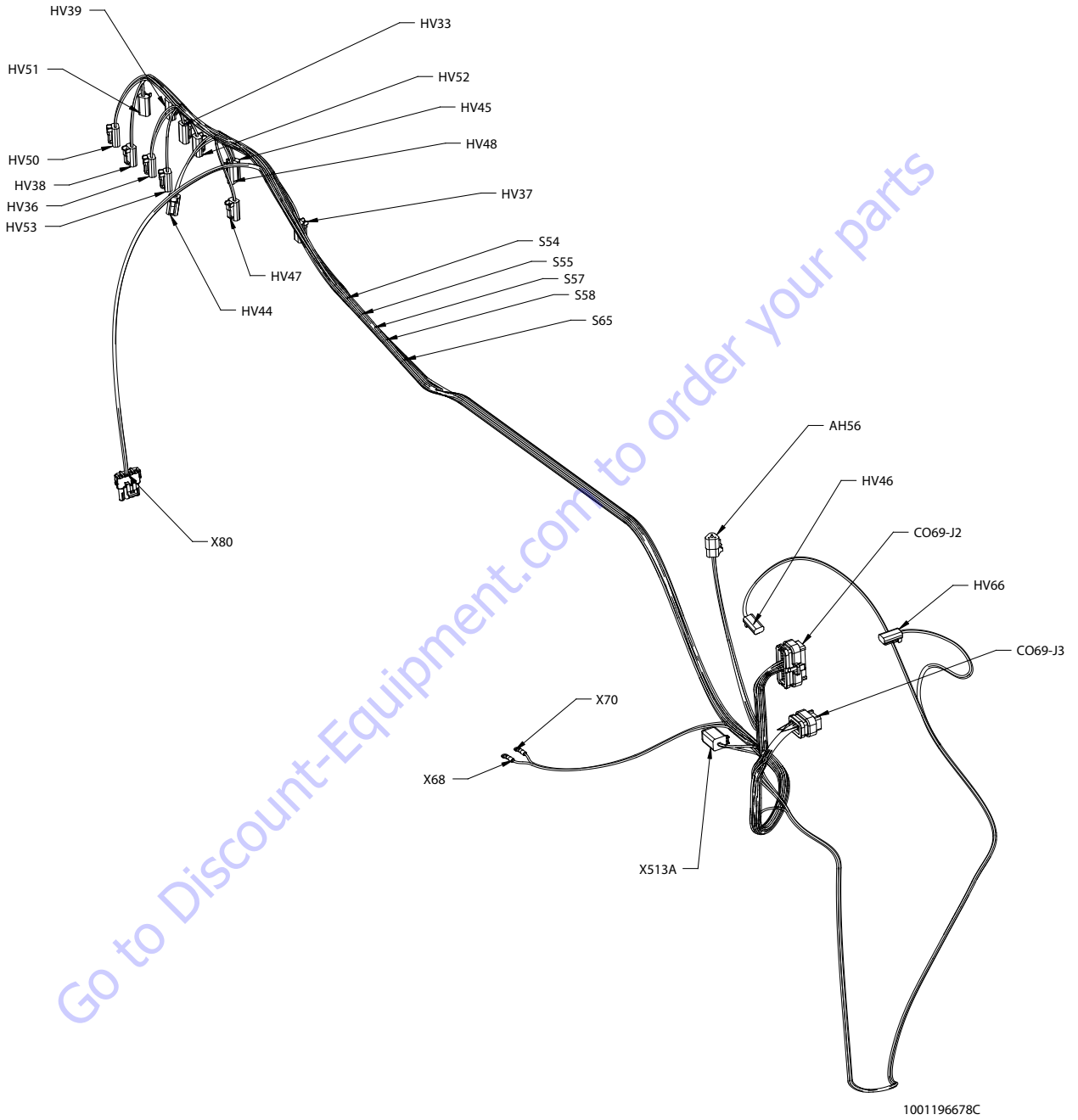


Figure 7-89. 400SC Main Valve Harness - Sheet 6 of 6

7.9 ELECTRICAL SCHEMATICS

SHEET 2: PLATFORM

PLATFORM CONTROL BOX HARNESS

SHEET 3: PLATFORM AND BOOM COMPONENTS

LSS HARNESS 450/400

BOOM CONTROL CABLE, NO JIB, 460SJ W/ JIB

TELE IN PROX SWITCHES

600/1000# CAPACITY PROX SWITCHES CABLE

SHEET 4: CHASSIS, TURNTABLE

TURNTABLE HARNESS

SHEET 5: GROUND USER INTERFACE

MAIN VALVE HARNESS

GROUND CONTROL PANEL HARNESS

SHEET 6: ENGINE SCHEMATIC DEUTZ - T4i

DEUTZ T4i ENGINE HARNESS

BATTERY CABLE KIT - T4i

SHEET 7: ENGINE SCHEMATIC DEUTZ T4F

DEUTZ T4F ENGINE HARNESS

BATTERY CABLE KIT - T4F

SHEET 8: ENGINE SCHEMATIC GM

GM ENGINE HARNESS

BATTERY CABLE KIT - GM

SHEET 9: SKYGUARD

CRIBBING OPTION HARNESS

SHEET 10: PLATFORM CHASSIS HEAD AND

TAIL PLATF WORKLIGHTS, CLEAR SKY

PLATFORM WORK LIGHTS

CHASSIS HEAD AND TAIL LIGHTS

CHASSIS WORK LIGHTS

SHEET 11: CRAWLER TURNTABLE HARNESS

SHEET 12: CRAWLER MAIN VALVE HARNESS

SHEET 13: KUBOTA ENGINE KUBOTA

ENGINE HARNESS

ALTERNATOR CABLE

BATTERY CABLE KIT

KUBOTA D/F PWR

SHEET 14: GENERATOR HARNESS

Figure 7-90. Electrical Schematic - Sheet 1 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

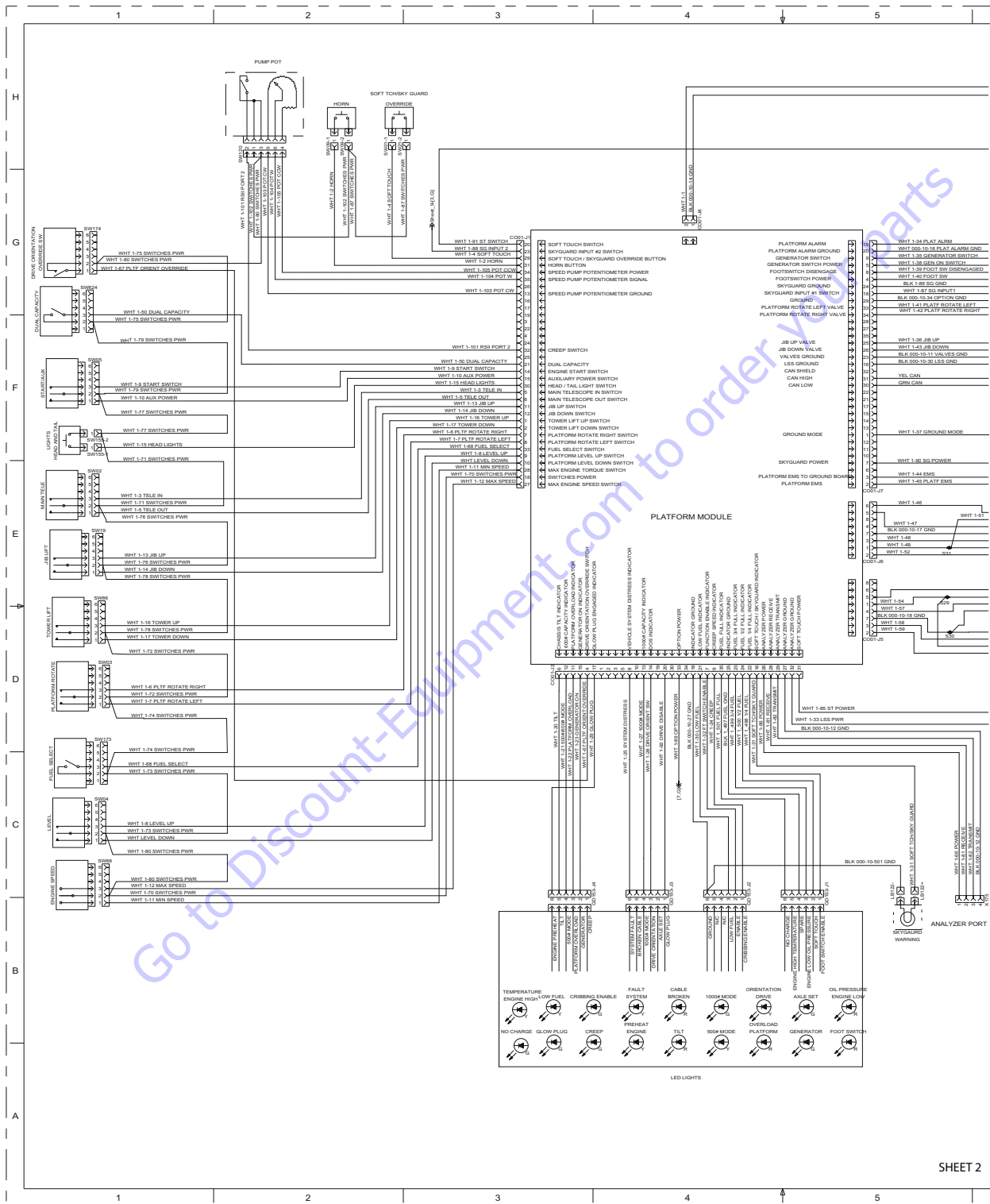


Figure 7-91. Electrical Schematic - Sheet 2 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

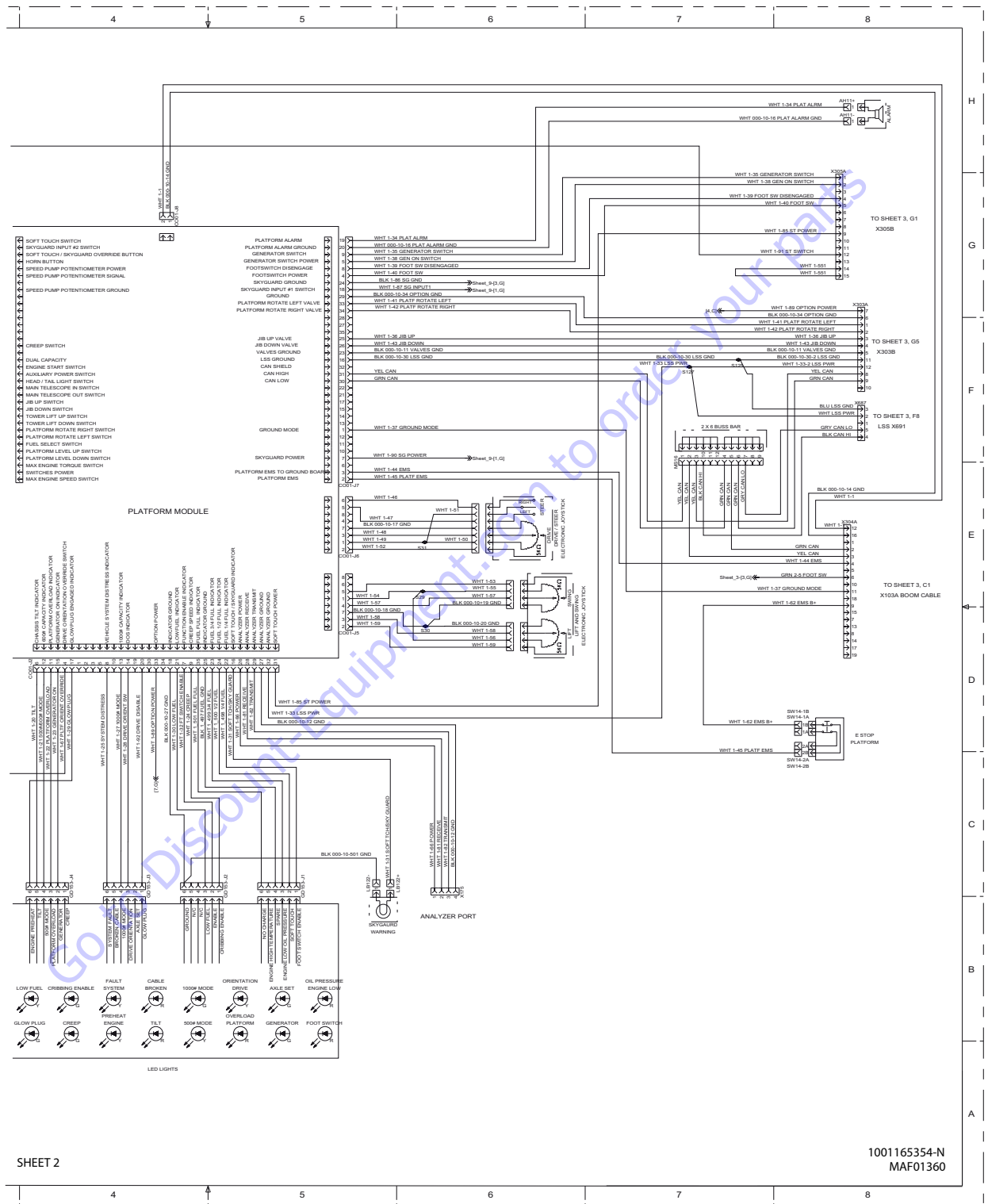


Figure 7-92. Electrical Schematic - Sheet 3 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

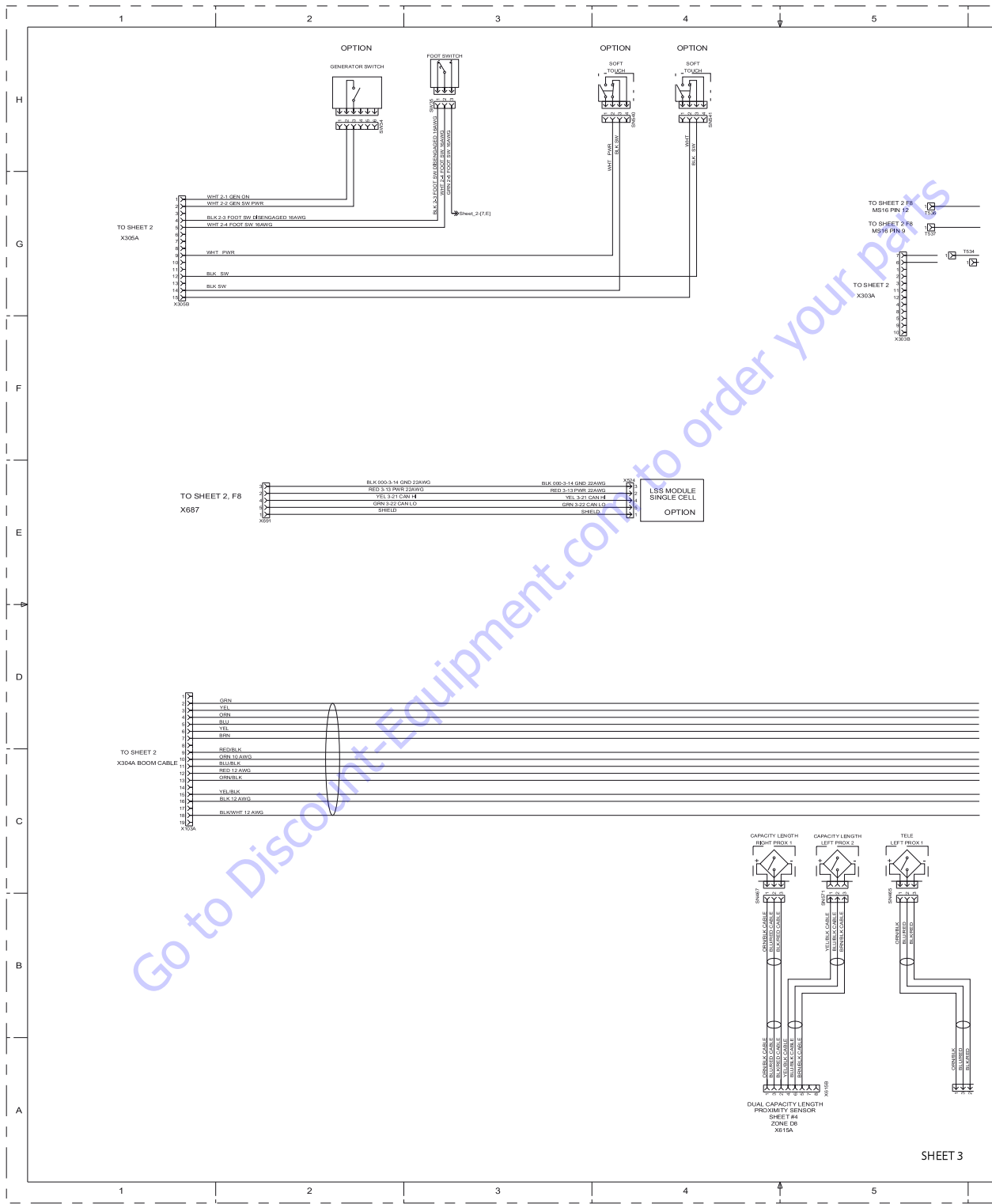


Figure 7-93. Electrical Schematic - Sheet 4 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

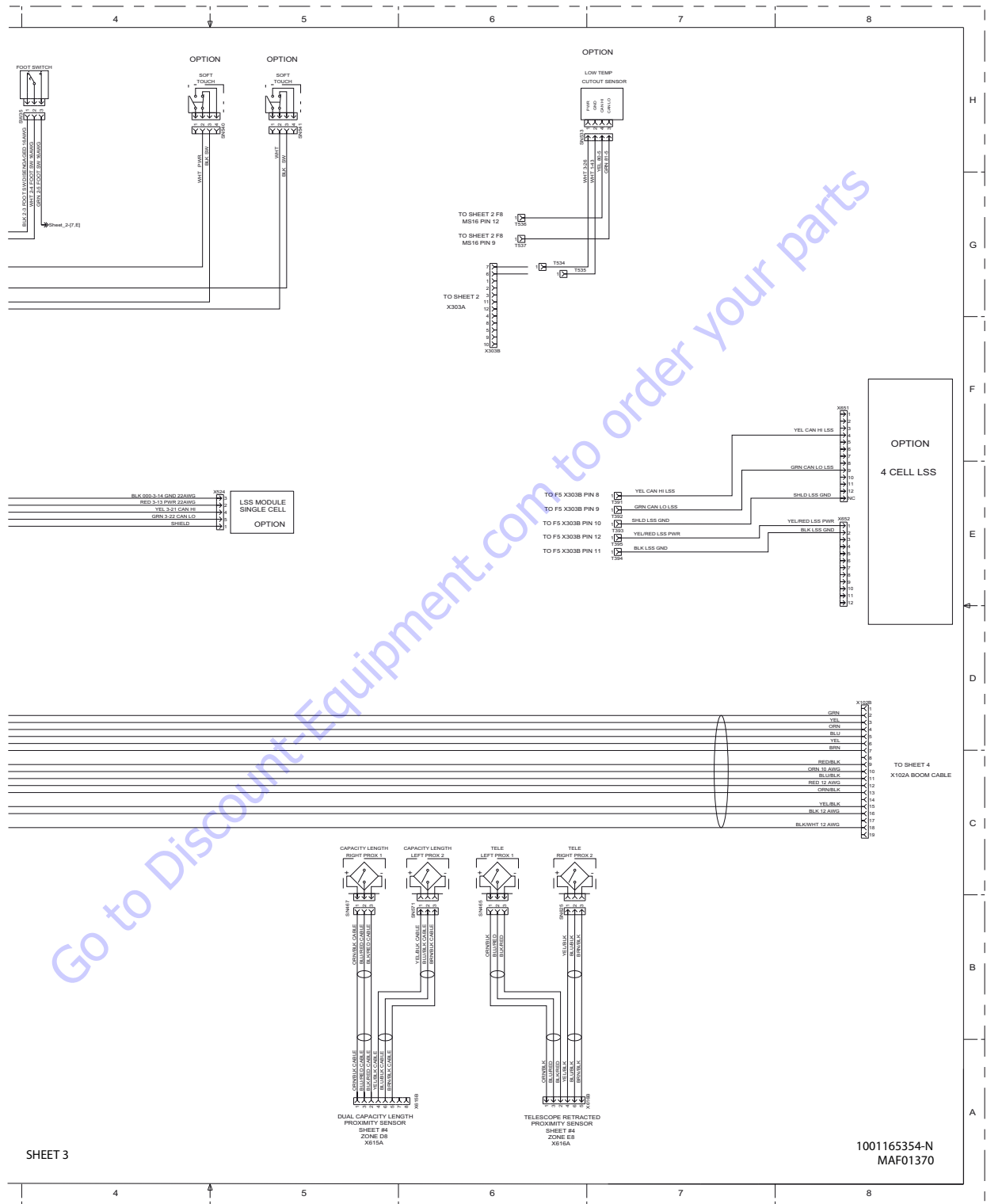


Figure 7-94. Electrical Schematic - Sheet 5 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

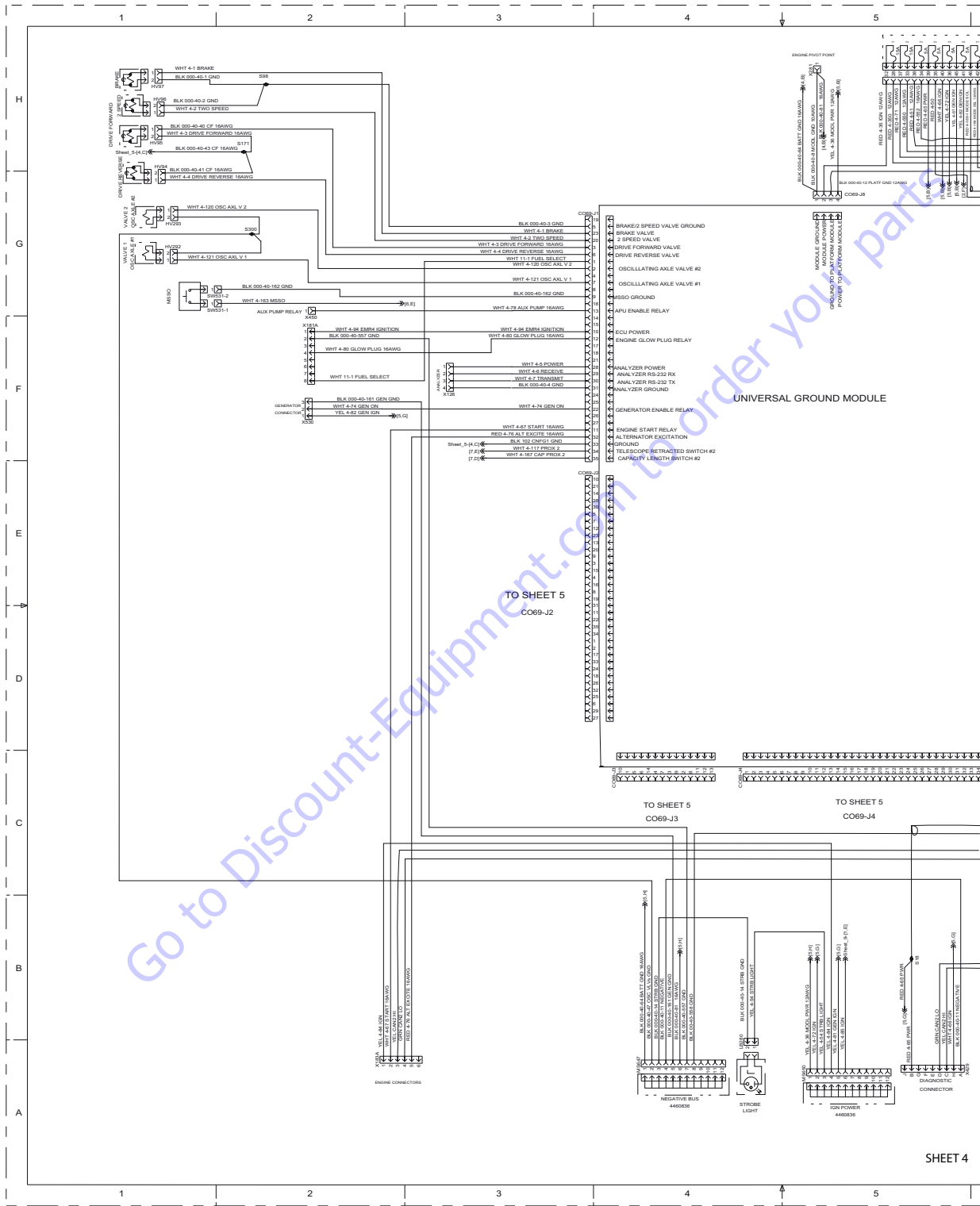


Figure 7-95. Electrical Schematic - Sheet 6 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

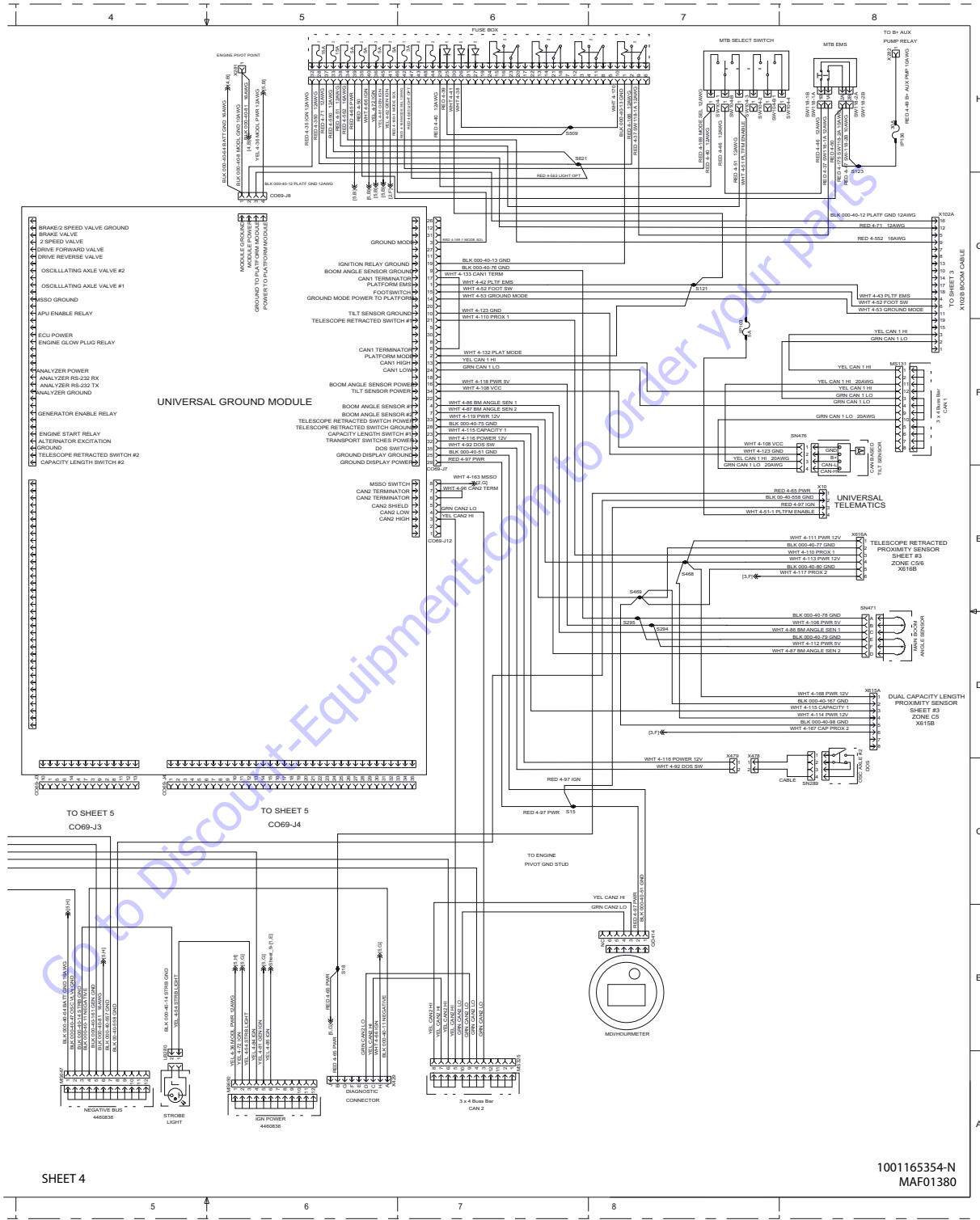


Figure 7-96. Electrical Schematic - Sheet 7 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

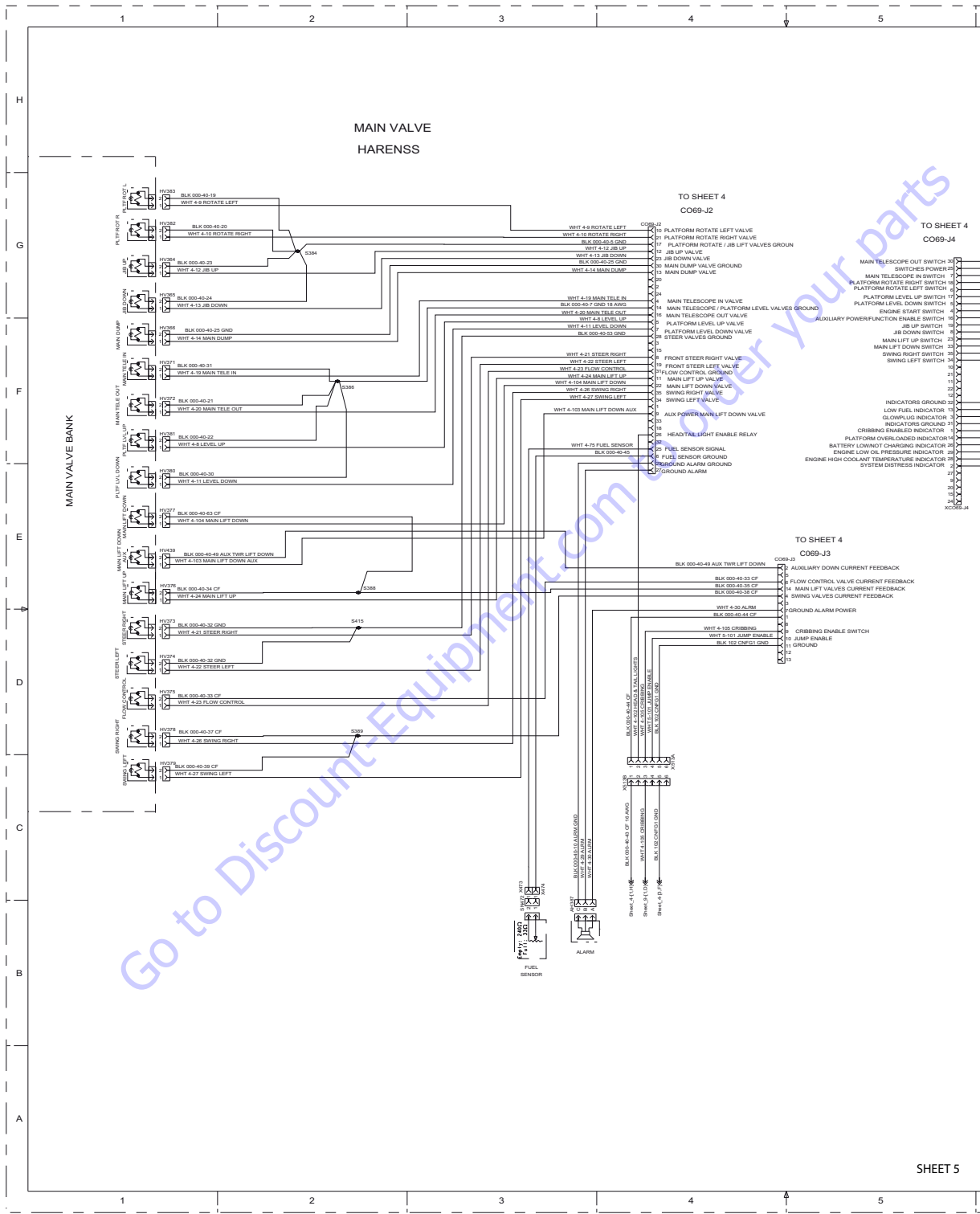


Figure 7-97. Electrical Schematic - Sheet 8 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

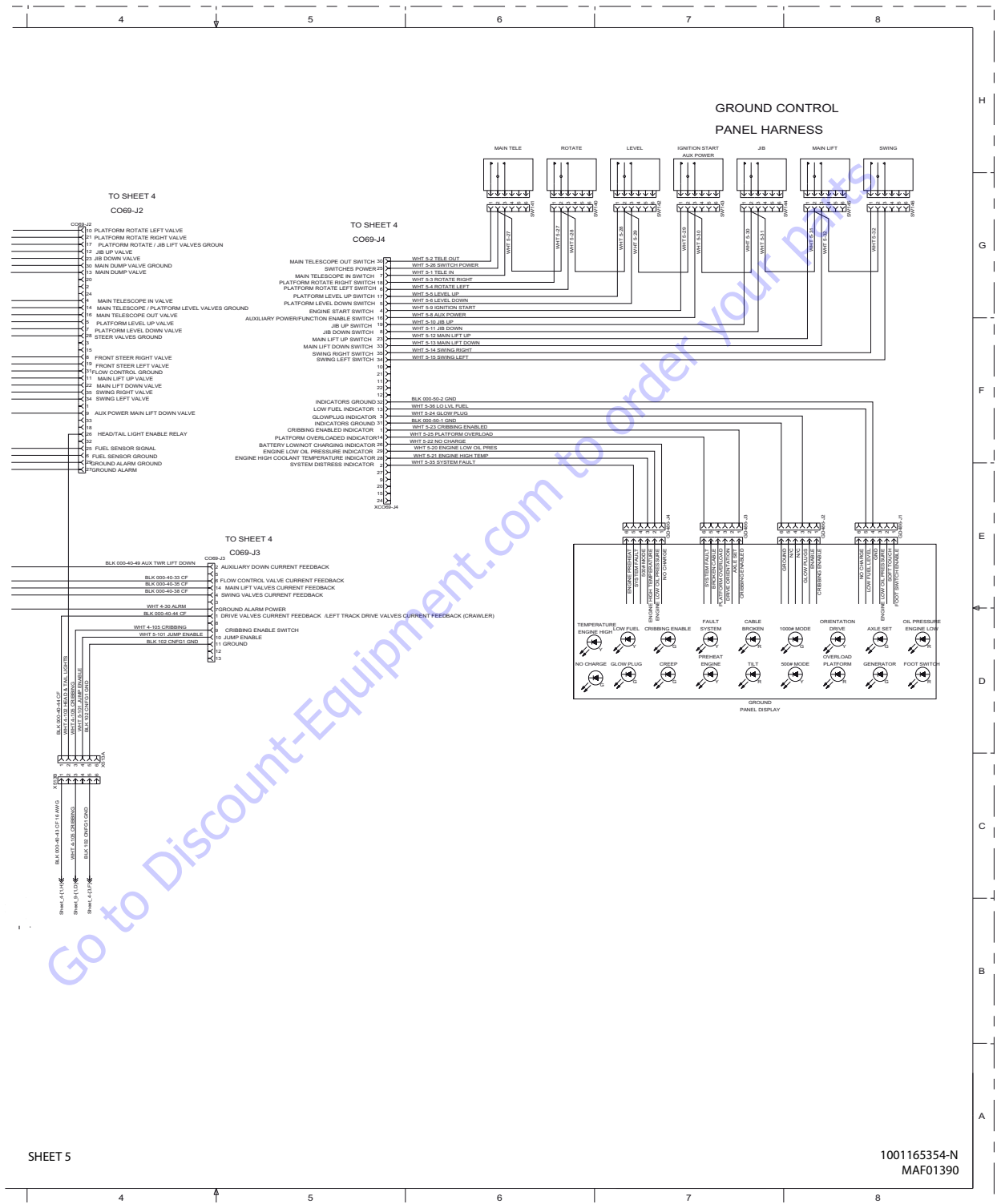


Figure 7-98. Electrical Schematic - Sheet 9 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

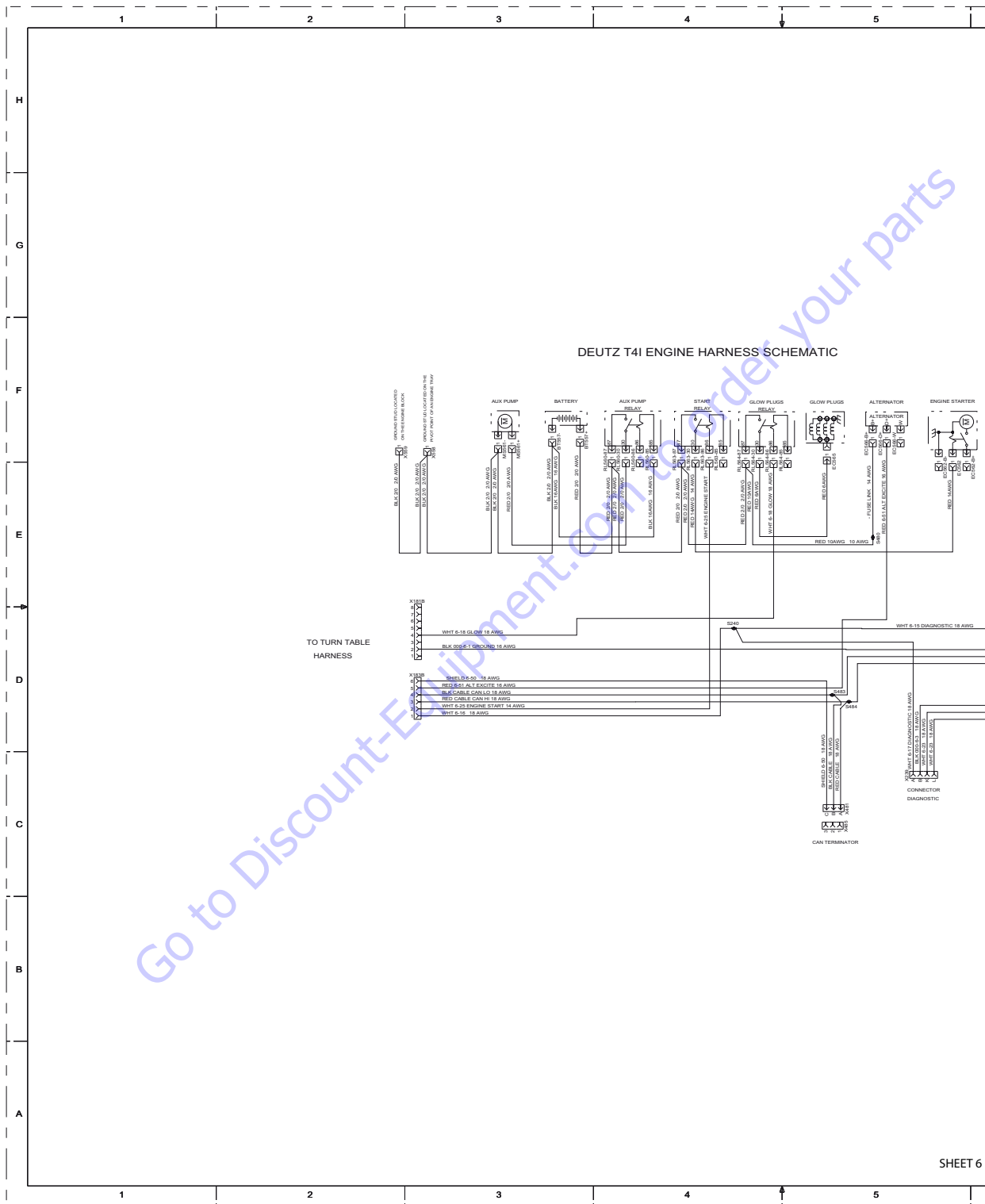
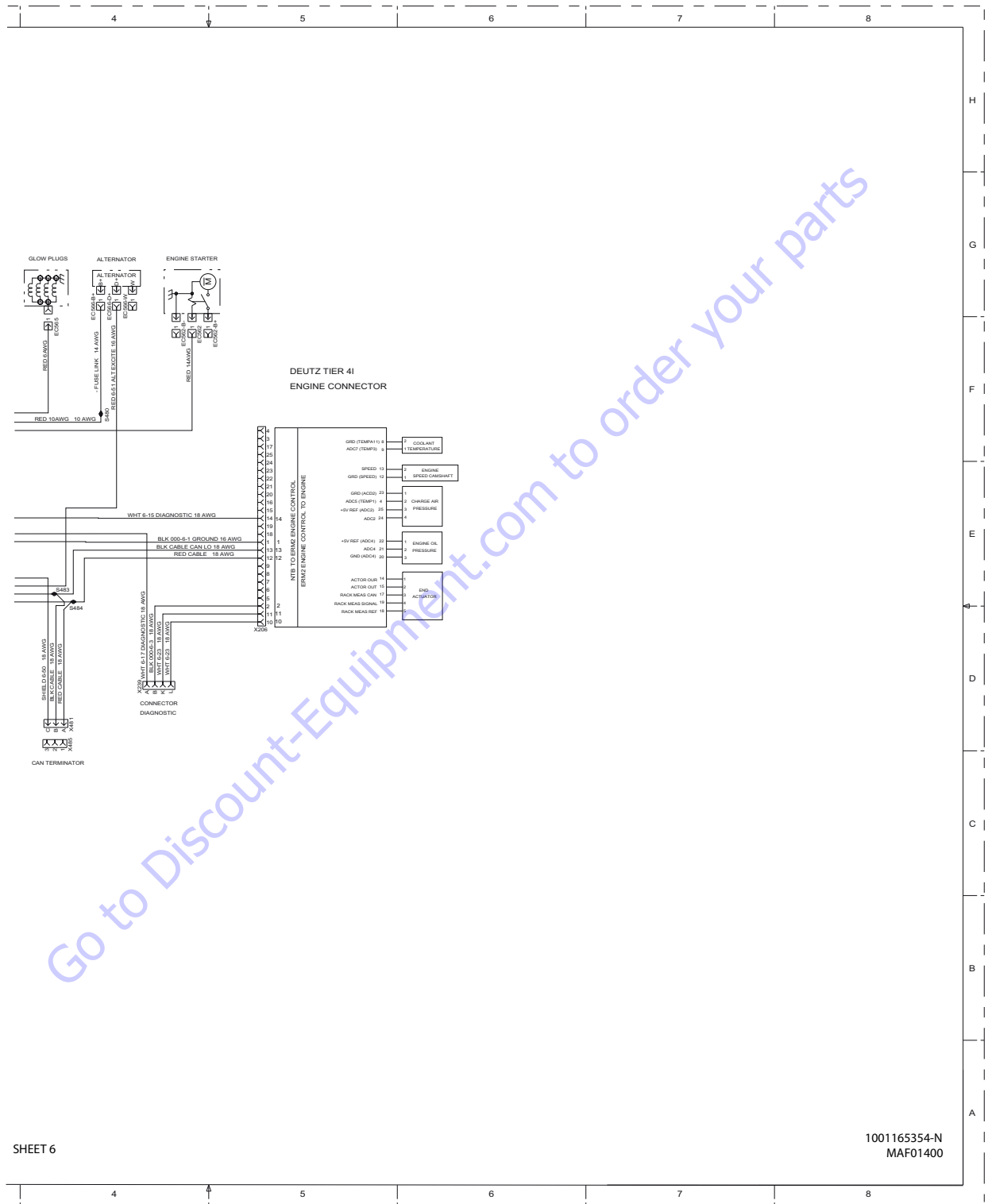


Figure 7-99. Electrical Schematic - Sheet 10 of 25



SHEET 6

1001165354-N
MAF01400

Figure 7-100. Electrical Schematic - Sheet 11 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

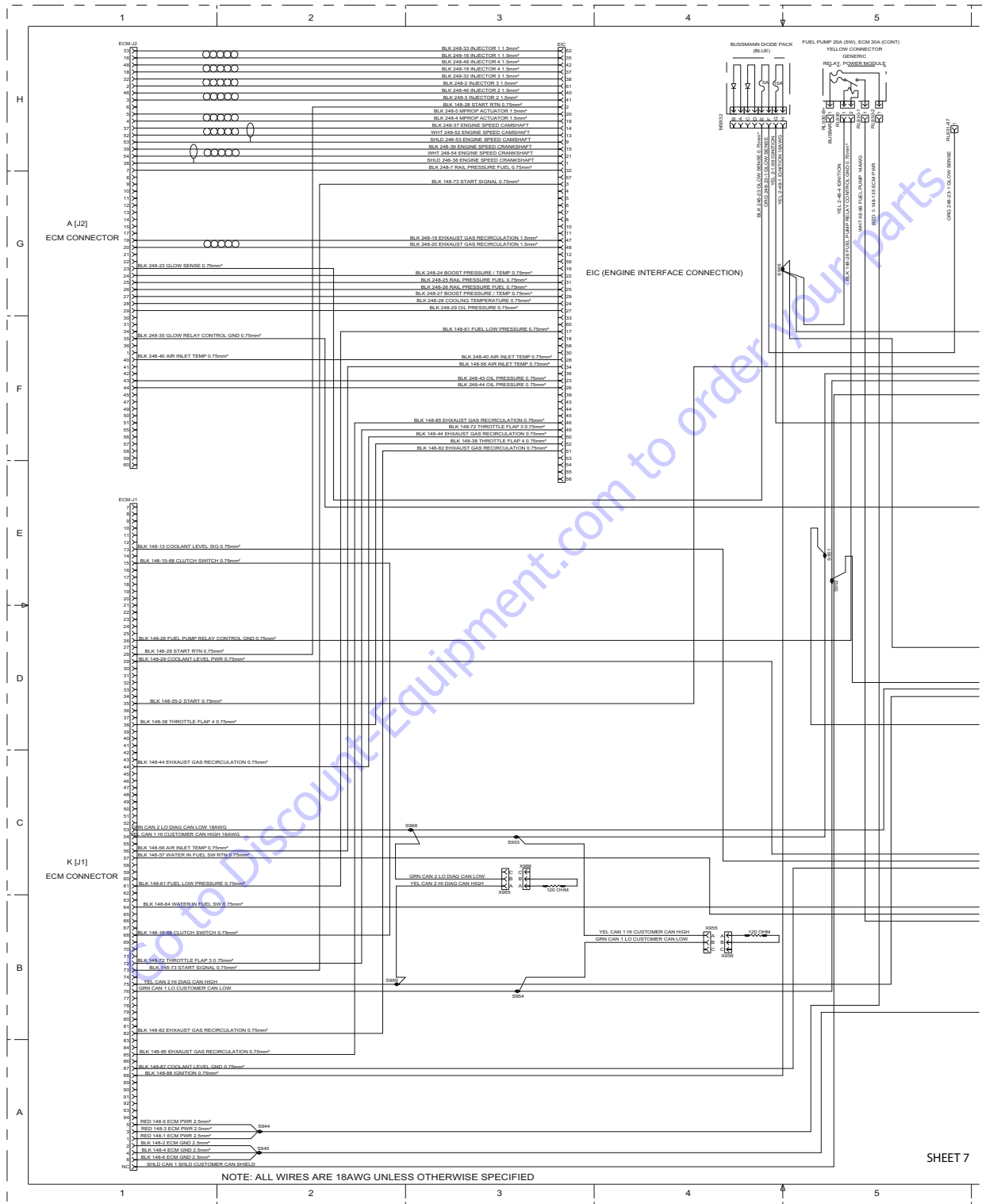


Figure 7-101. Electrical Schematic - Sheet 12 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

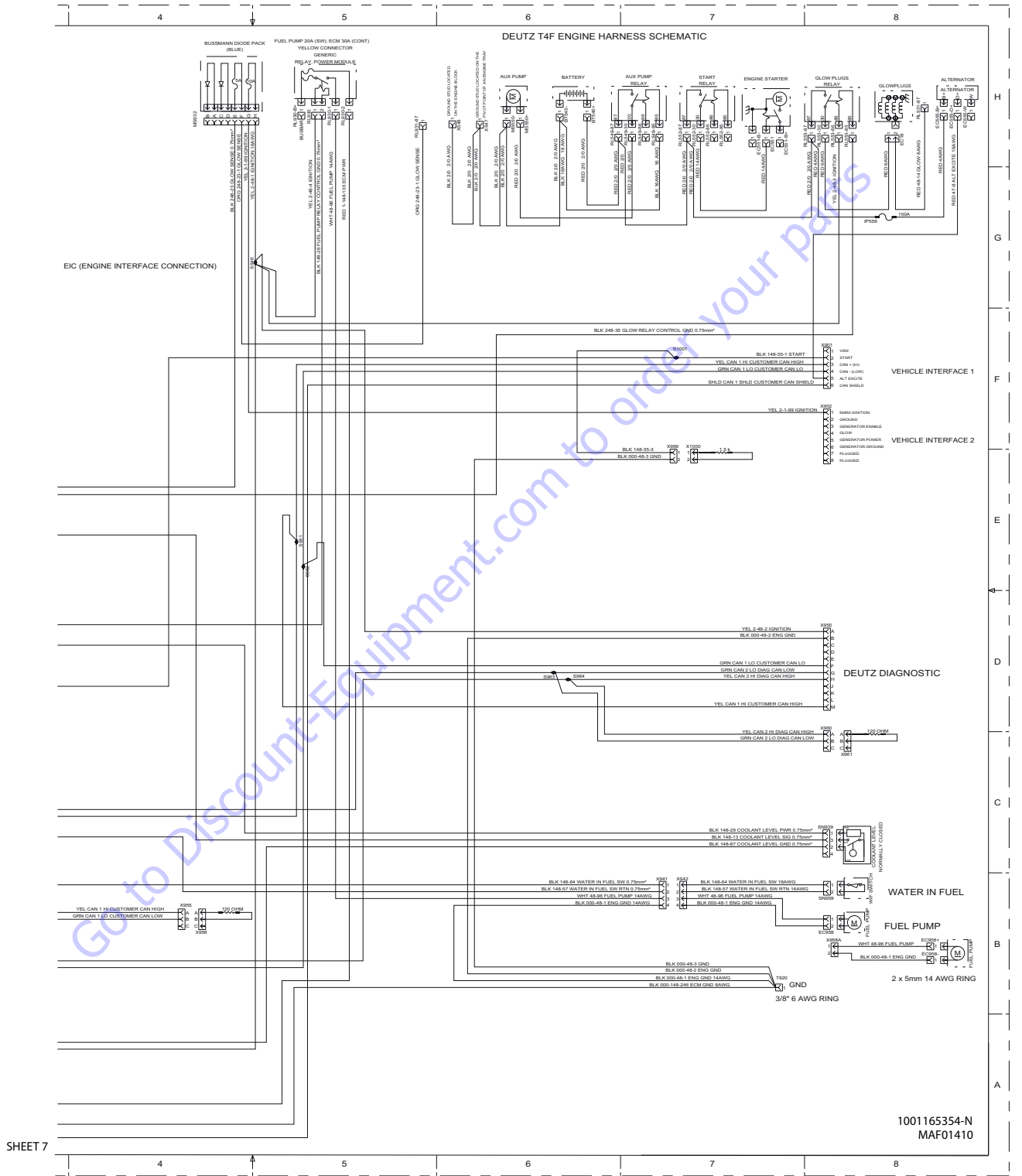


Figure 7-102. Electrical Schematic - Sheet 13 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

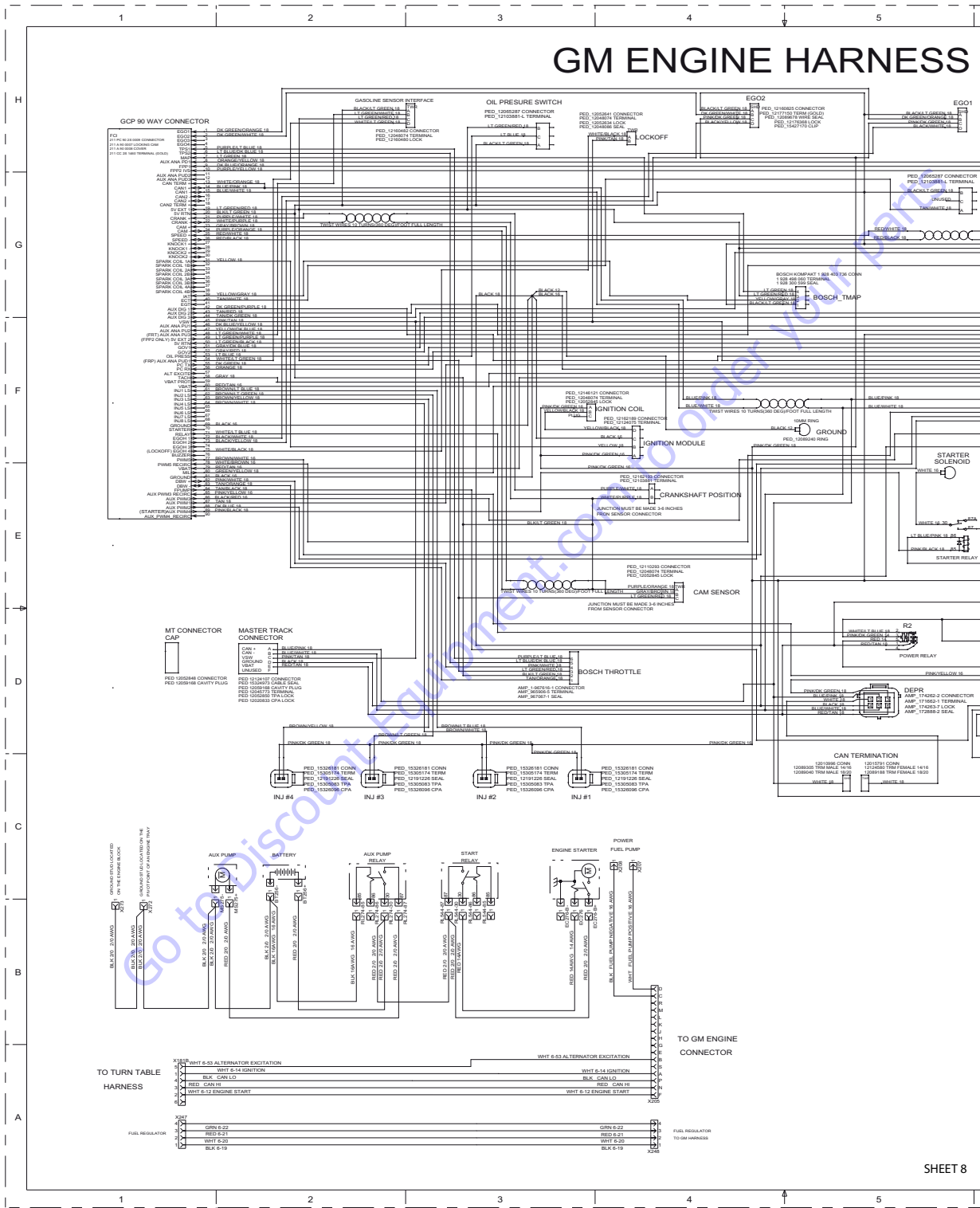


Figure 7-103. Electrical Schematic - Sheet 14 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

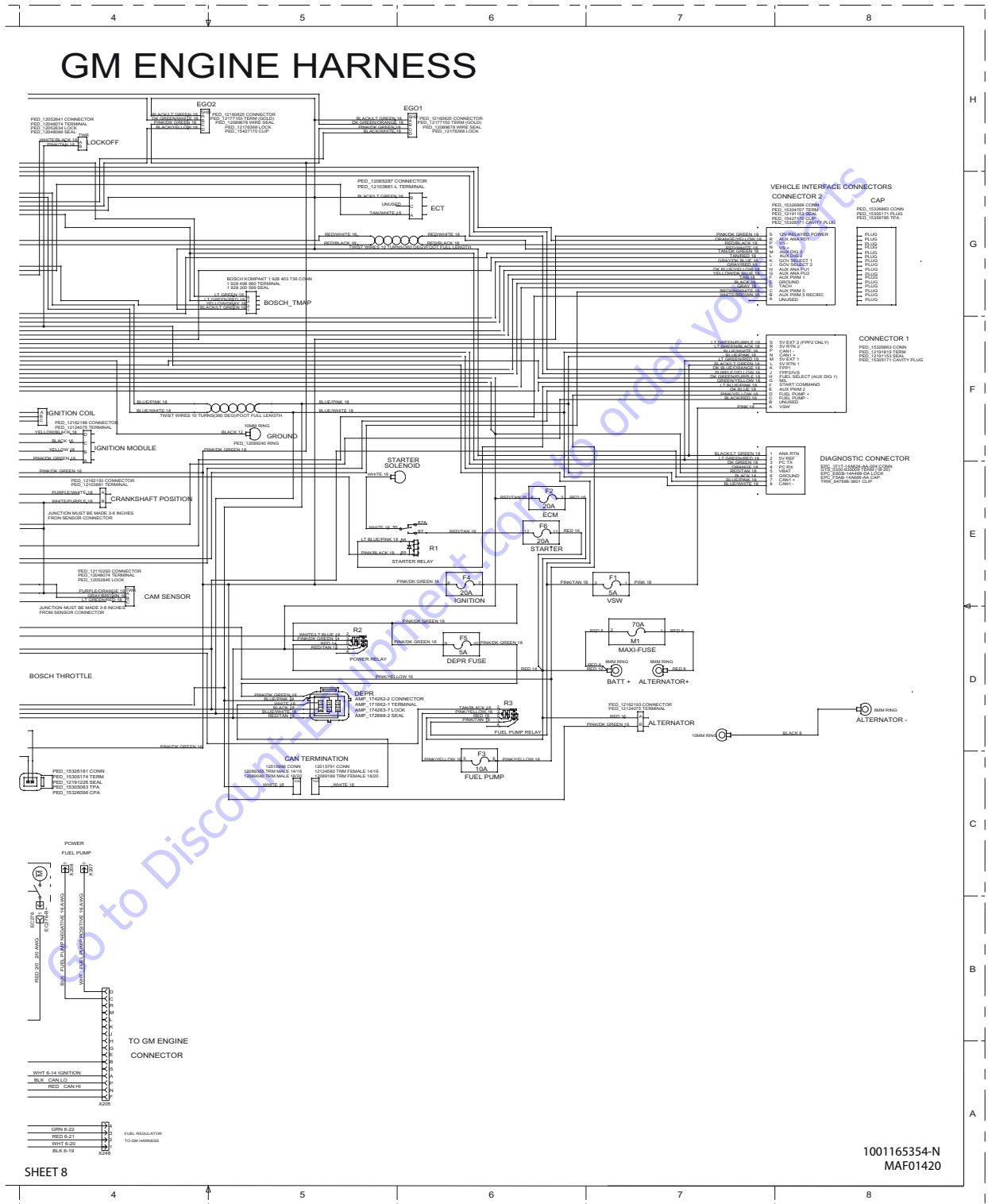


Figure 7-104. Electrical Schematic - Sheet 15 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

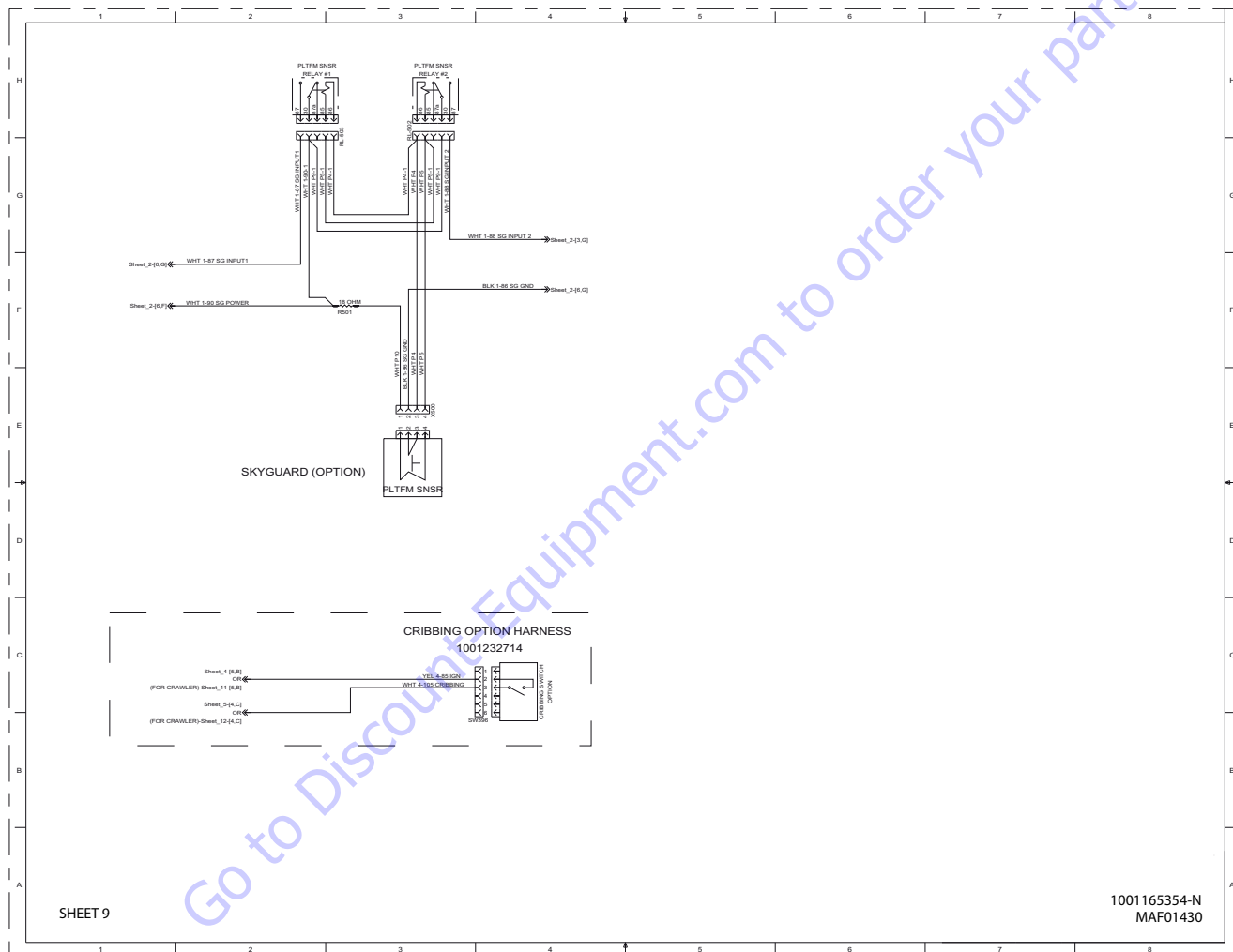
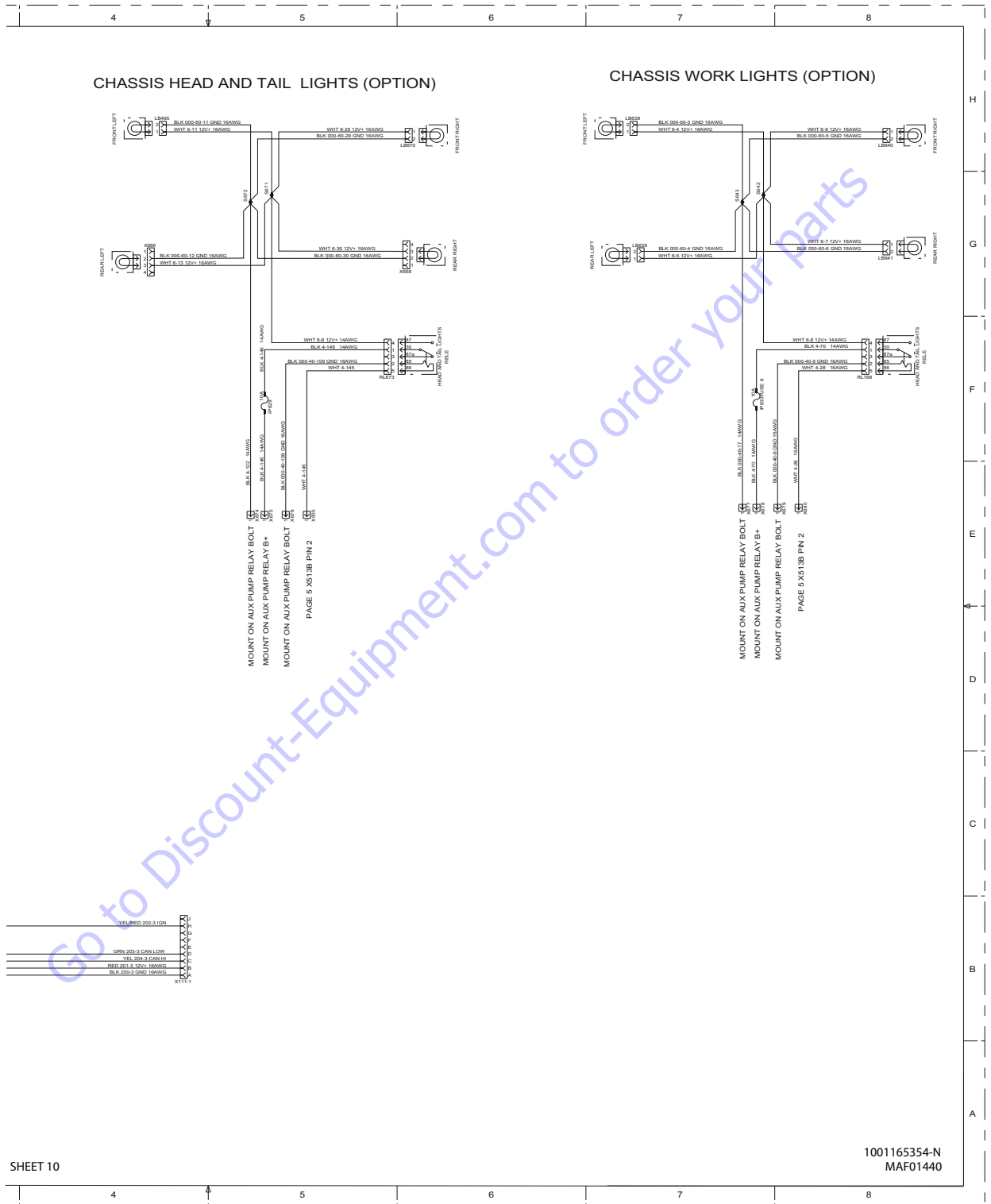


Figure 7-105. Electrical Schematic - Sheet 16 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS



SHEET 10

1001165354-N
MAF01440

Figure 7-107. Electrical Schematic - Sheet 18 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

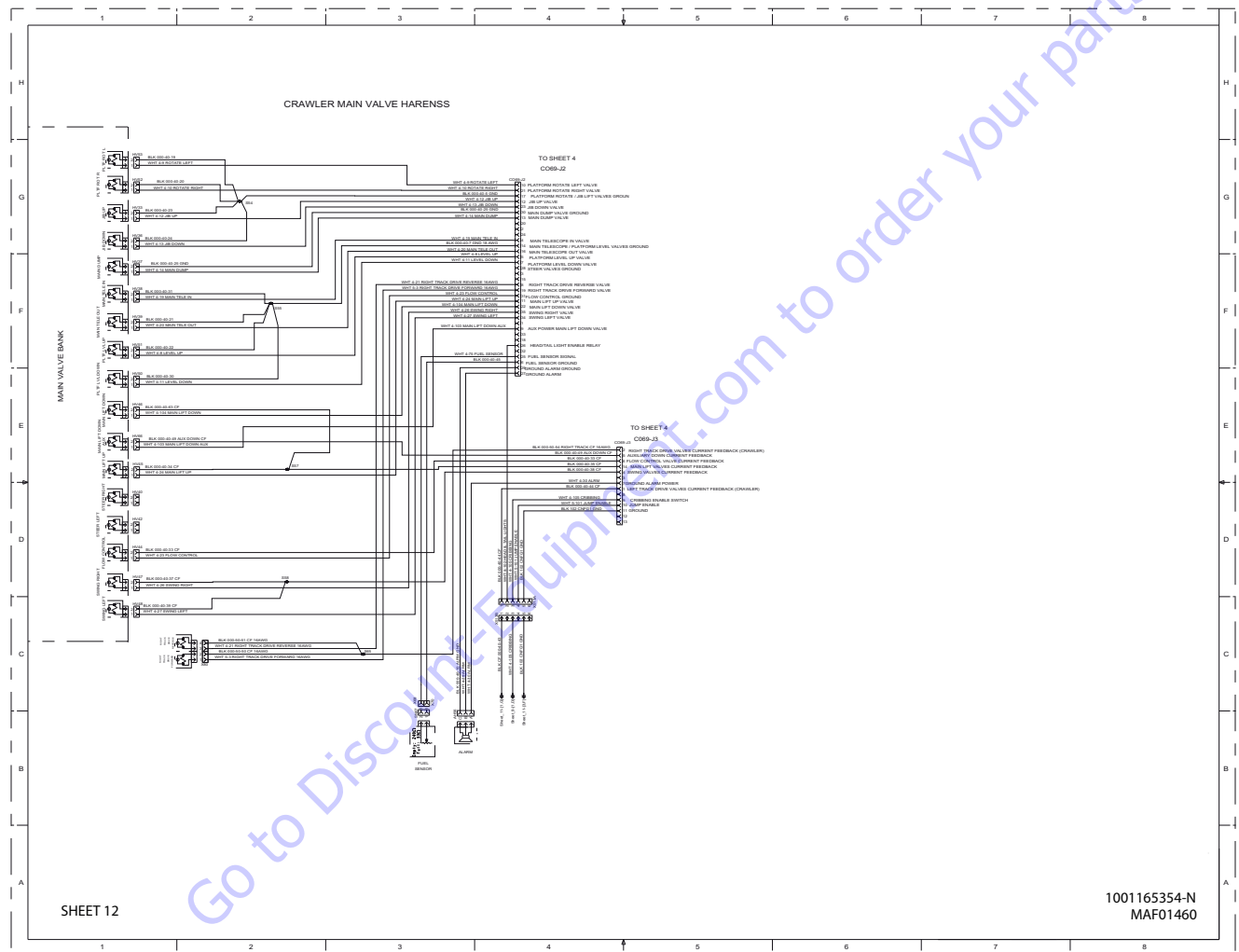


Figure 7-110. Electrical Schematic - Sheet 21 of 25

SECTION 7 - BASIC ELECTRICAL INFORMATION & ELECTRICAL SCHEMATICS

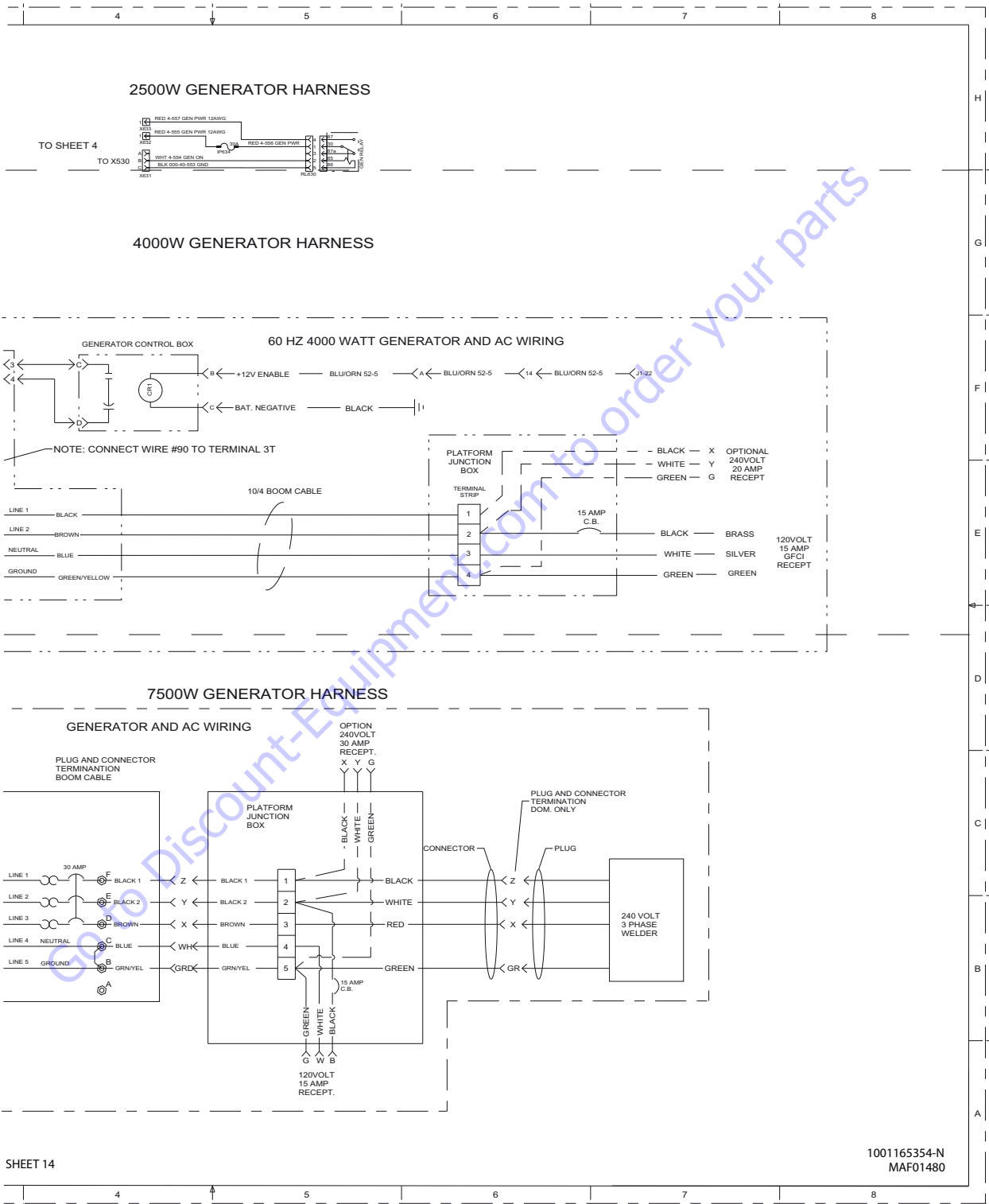


Figure 7-114. Electrical Schematic - Sheet 25 of 25

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