2.2 SPECIFICATIONS

2.2.1 Travel Speed

TRANSMISSION	AVERAGE MAXIMUM SPEED - FORWARD (miles per hour)				
	642 110HP (82kW)	**742** 74HP (54kW)	**943** 110HP (82kW)	**1043** 110HP (82kW)	**1055, 1255** 130 HP (97 kW)
First Gear	3.3	3.3	3.1	3.1	3.2
Second Gear	6.3	6.3	5.9	5.9	6.2
Third Gear	14.1	14.1	13.5	13.5	14.2
Fourth Gear	19.5	19.5	18.5	18.5	20.5

TRANSMISSION	AVERAGE MAXIMUM SPEED - REVERSE (miles per hour)				
	642 110HP (82kW)	**742** 74HP (54kW)	**943** 110HP (82kW)	**1043** 110HP (82kW)	**1055, 1255** 130 HP (97 kW)
First Gear	3.3	3.3	3.0	3.0	3.2
Second Gear	6.3	6.3	5.9	5.9	6.2
Third Gear	14.2	14.2	13.5	13.5	14.2

2.2.2 Cylinder Drift

Cylinder	Maximum Rod Travel (loaded or unloaded)
Lift/Lower Cylinder	0.125 in (3,2 mm) per hour
Extend/Retract Cylinder	0.125 in (3,2 mm) per hour
Attachment Tilt Cylinder	0.125 in (3,2 mm) per hour

2.2.3 Steering Angle Specifications

Model	Angle (in Degree)
642, 742, 943,1043	55
1055, 1255	45

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2.4 SERVICE AND MAINTENANCE SCHEDULES

2.4.1 Every 10 Hours



Check Fuel Level



Check Tire Condition and Pressure



Check Brake Fluid Level



Check Engine Oil Level



Check Hydraulic Oil Level



Check Transmission Oil Level



Check DEF Level (if equipped for ULS 110 HP (82 kW) 130 HP (97 kW))



Check Engine Coolant Level



Check Air Cleaner



Drain Fuel/Water Separator

2.4.2 First 50 Hours



Check Wheel Lug Nut Torque



Check Boom Chain Tension

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2.7 TORQUE CHARTS

2.7.1 SAE Fastener Torque Chart

Values for Zinc Yellow Chromate Fasteners (Ref 4150707)													
SAE GRADE 5 BOLTS & GRADE 2 NUTS													
Size	TPI	Bolt Dia	Tensile Stress Area	Clamp Load	Torque (Dry)		Torque Lubricated		Torque (Loctite® 242™ or 271™ or Vibra-TITE™ 111 or 140)		Torque (Loctite® 262™ or Vibra-TITE™ 131)	
		In	Sq In	LB	IN-LB	[N.m]	IN-LB	[N.m]	IN-LB	[N.m]	IN-LB	[N.m]
4	40	0.1120	0.00604	380	8	0.9	6	0.7				
	48	0.1120	0.00661	420	9	1.0	7	0.8				
6	32	0.1380	0.00909	580	16	1.8	12	1.4				
	40	0.1380	0.01015	610	18	2.0	13	1.5				
8	32	0.1640	0.01400	900	30	3.4	22	2.5				
	36	0.1640	0.01474	940	31	3.5	23	2.6				
10	24	0.1900	0.01750	1120	43	4.8	32	3.5				
	32	0.1900	0.02000	1285	49	5.5	36	4				
1/4	20	0.2500	0.0318	2020	96	10.8	75	9	105	12		
	28	0.2500	0.0364	2320	120	13.5	86	10	135	15		
		In	Sq In	LB	FT-LB	[N.m]	FT-LB	[N.m]	FT-LB	[N.m]	FT-LB	[N.m]
5/16	18	0.3125	0.0524	3340	17	23	13	18	19	26	16	22
	24	0.3125	0.0580	3700	19	26	14	19	21	29	17	23
3/8	16	0.3750	0.0775	4940	30	41	23	31	35	48	28	38
	24	0.3750	0.0878	5600	35	47	25	34	40	54	32	43
7/16	14	0.4375	0.1063	6800	50	68	35	47	55	75	45	61
	20	0.4375	0.1187	7550	55	75	40	54	60	82	50	68
1/2	13	0.5000	0.1419	9050	75	102	55	75	85	116	68	92
	20	0.5000	0.1599	10700	90	122	65	88	100	136	80	108
9/16	12	0.5625	0.1820	11600	110	149	80	108	120	163	98	133
	18	0.5625	0.2030	12950	120	163	90	122	135	184	109	148
5/8	11	0.6250	0.2260	14400	150	203	110	149	165	224	135	183
	18	0.6250	0.2560	16300	170	230	130	176	190	258	153	207
3/4	10	0.7500	0.3340	21300	260	353	200	271	285	388	240	325
	16	0.7500	0.3730	23800	300	407	220	298	330	449	268	363
7/8	9	0.8750	0.4620	29400	430	583	320	434	475	646	386	523
	14	0.8750	0.5090	32400	470	637	350	475	520	707	425	576
1	8	1.0000	0.6060	38600	640	868	480	651	675	918	579	785
	12	1.0000	0.6630	42200	700	949	530	719	735	1000	633	858
1 1/8	7	1.1250	0.7630	42300	800	1085	600	813	840	1142	714	968
	12	1.1250	0.8560	47500	880	1193	660	895	925	1258	802	1087
1 1/4	7	1.2500	0.9690	53800	1120	1518	840	1139	1175	1598	1009	1368
	12	1.2500	1.0730	59600	1240	1681	920	1247	1300	1768	1118	1516
1 3/8	6	1.3750	1.1550	64100	1460	1979	1100	1491	1525	2074	1322	1792
	12	1.3750	1.3150	73000	1680	2278	1260	1708	1750	2380	1506	2042
1 1/2	6	1.5000	1.4050	78000	1940	2630	1460	1979	2025	2754	1755	2379
	12	1.5000	1.5800	87700	2200	2983	1640	2224	2300	3128	1974	2676

NOTES: 1. THESE TORQUE VALUES DO NOT APPLY TO CADMIUM PLATED FASTENERS 5000059K

2. ALL TORQUE VALUES ARE STATIC TORQUE MEASURED PER STANDARD AUDIT METHODS TOLERANCE = ±10%

3. * ASSEMBLY USES HARDENED WASHER

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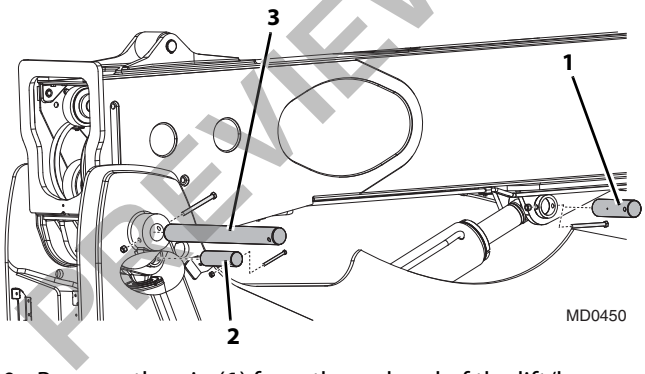
3.3 BOOM REMOVAL/INSTALLATION

3.3.1 Complete Boom Removal

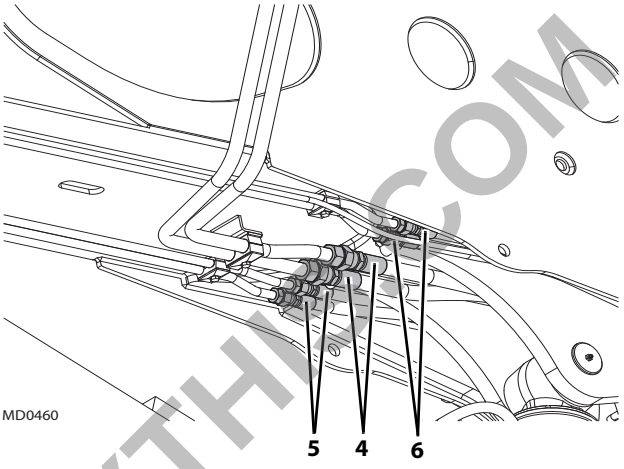
While the boom sections can be separated from each other on the machine, it is more efficient to remove the complete boom assembly from the machine and place it on suitable supports for separation.

Note: *When removing a complete boom assembly use a hoist or crane with a minimum lift capacity of 10,000 lbs (4,536 kg).*

1. Remove any attachment from the quick coupler assembly. Refer to Operation & Safety Manual.
2. Remove the quick coupler assembly. Refer to Section 3.13.1, "Manual Coupler".
3. Park the machine on a hard, level surface, fully retract the boom, raise the boom assembly to access lift/lower cylinder pin and the compensation cylinder pin, place the transmission in (N) NEUTRAL, engage the park brake and shut the engine OFF.
4. Place a Do Not Operate Tag on both the ignition key switch and the steering wheel.
5. Open the engine cover. Allow the system fluids to cool.
6. Properly disconnect the battery. Refer to Section 9.8, "Battery", for procedure.
7. Close engine cover to access lift/lower cylinder pin and the compensation cylinder pin.
8. Properly support the boom assembly using a hoist or crane.
9. Remove boom angle sensor arm. Refer to Section 9.11.6, "Boom Angle Sensor".



10. Remove the pin (**1**) from the rod end of the lift/lower cylinder being careful not to drop the cylinder. Lower the cylinder to a secure position.
11. Remove the pin (**2**) from the rod end of the compensation cylinder being careful not to drop the cylinder. Lower the cylinder to a secure position.
12. Lower the boom assembly to level.
13. Place a sling around the first boom at the balance points.

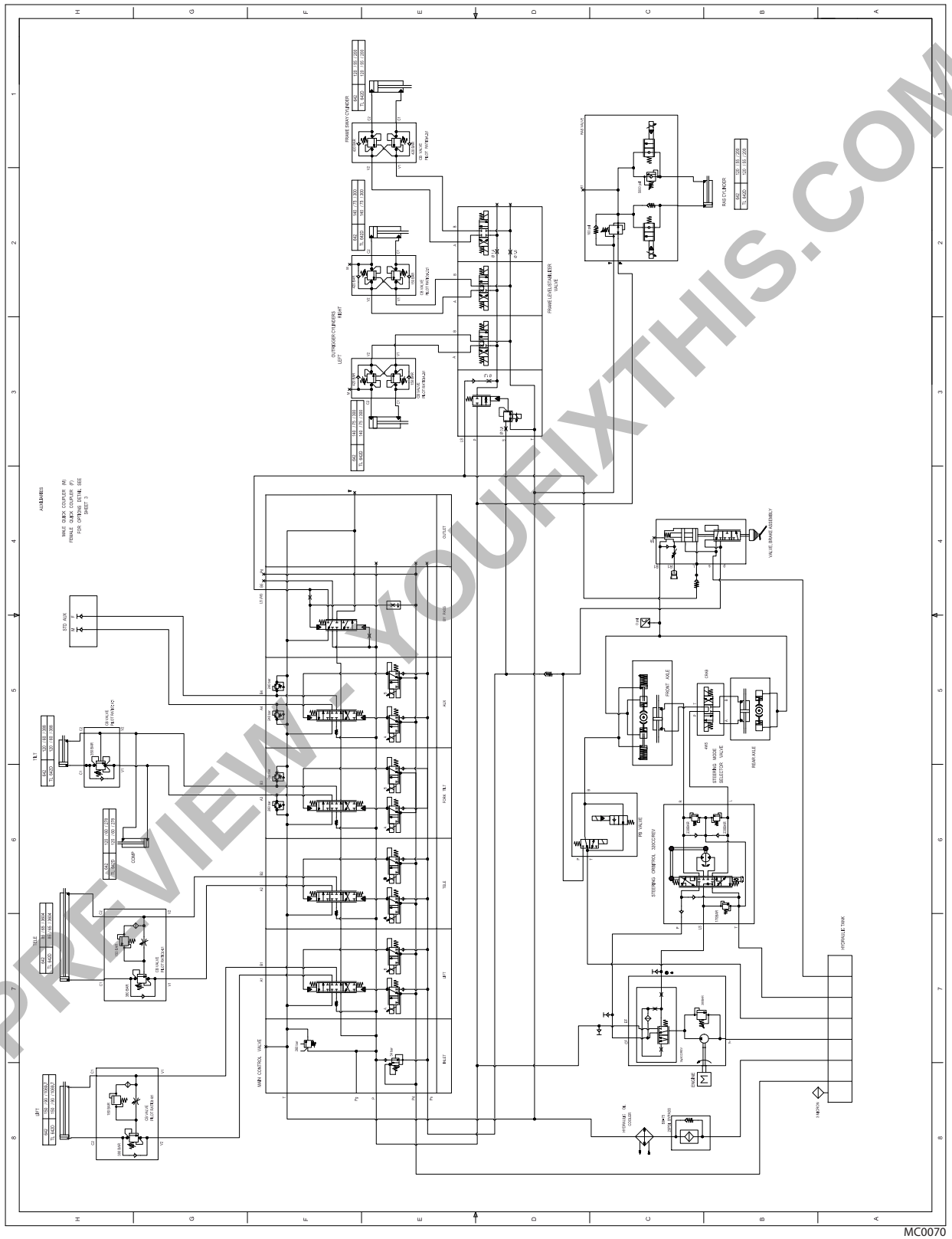


14. Label, disconnect and cap the extend/retract cylinder hoses (**4**). Cap all fittings and openings to keep dirt and debris from entering the hydraulic system.
15. Label, disconnect and cap the tilt hoses (**5**) and auxiliary hoses (**6**). Cap all fittings and openings to keep dirt and debris from entering the hydraulic system.
16. Label and disconnect all electrical connections to the boom assembly.
17. Remove the boom assembly pivot pin (**3**).
18. Confirm that the boom assembly is balanced with the sling and remove the boom assembly pivot pins.
19. Lift the boom assembly from the machine and lower onto suitable supports.

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b. With Outriggers



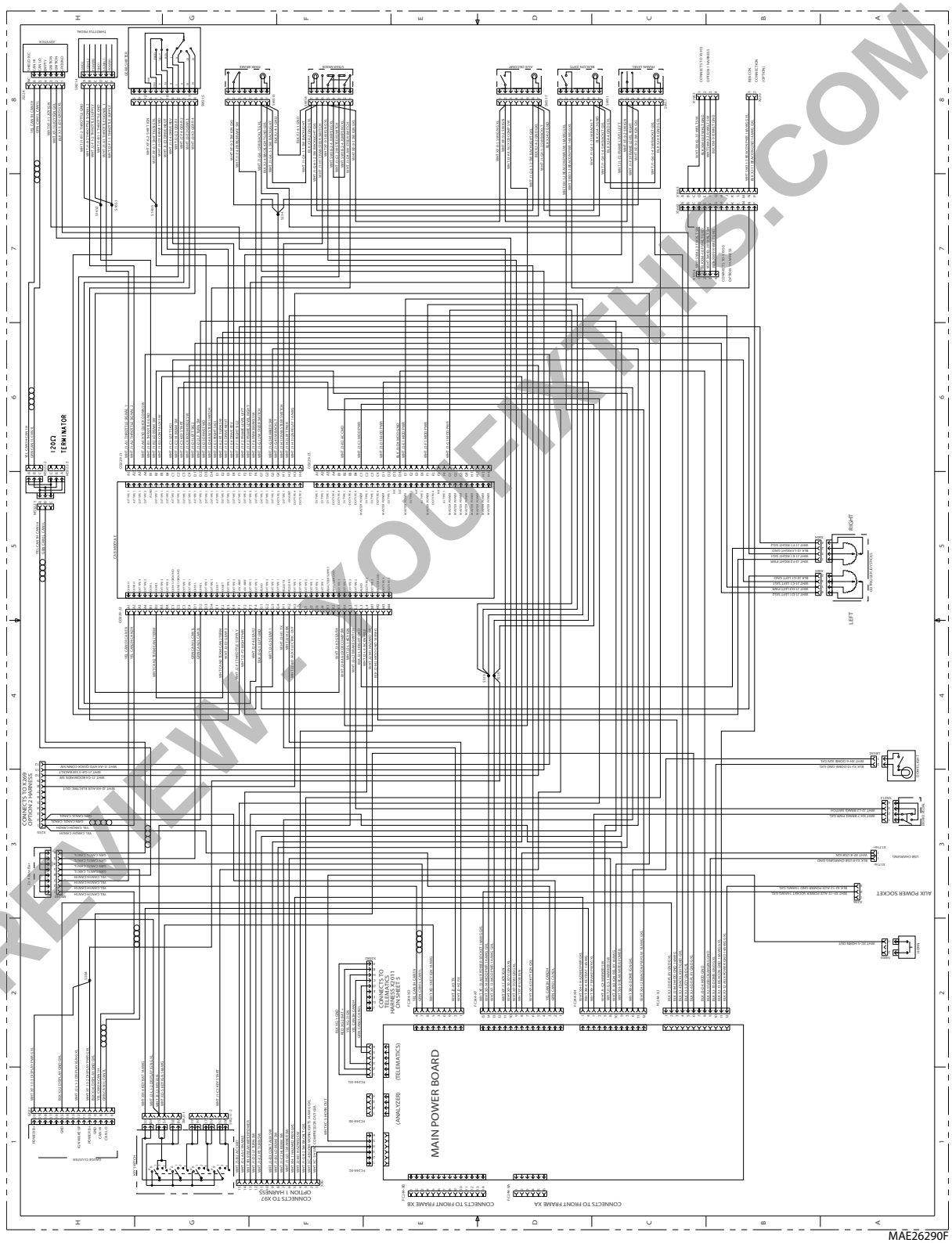
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9.5 ELECTRICAL SYSTEM SCHEMATICS

9.5.1 642, 742, 943, 1043 - Prior to SN 0160093271

a. Cab Harness Electrical Schematic 1 of 4



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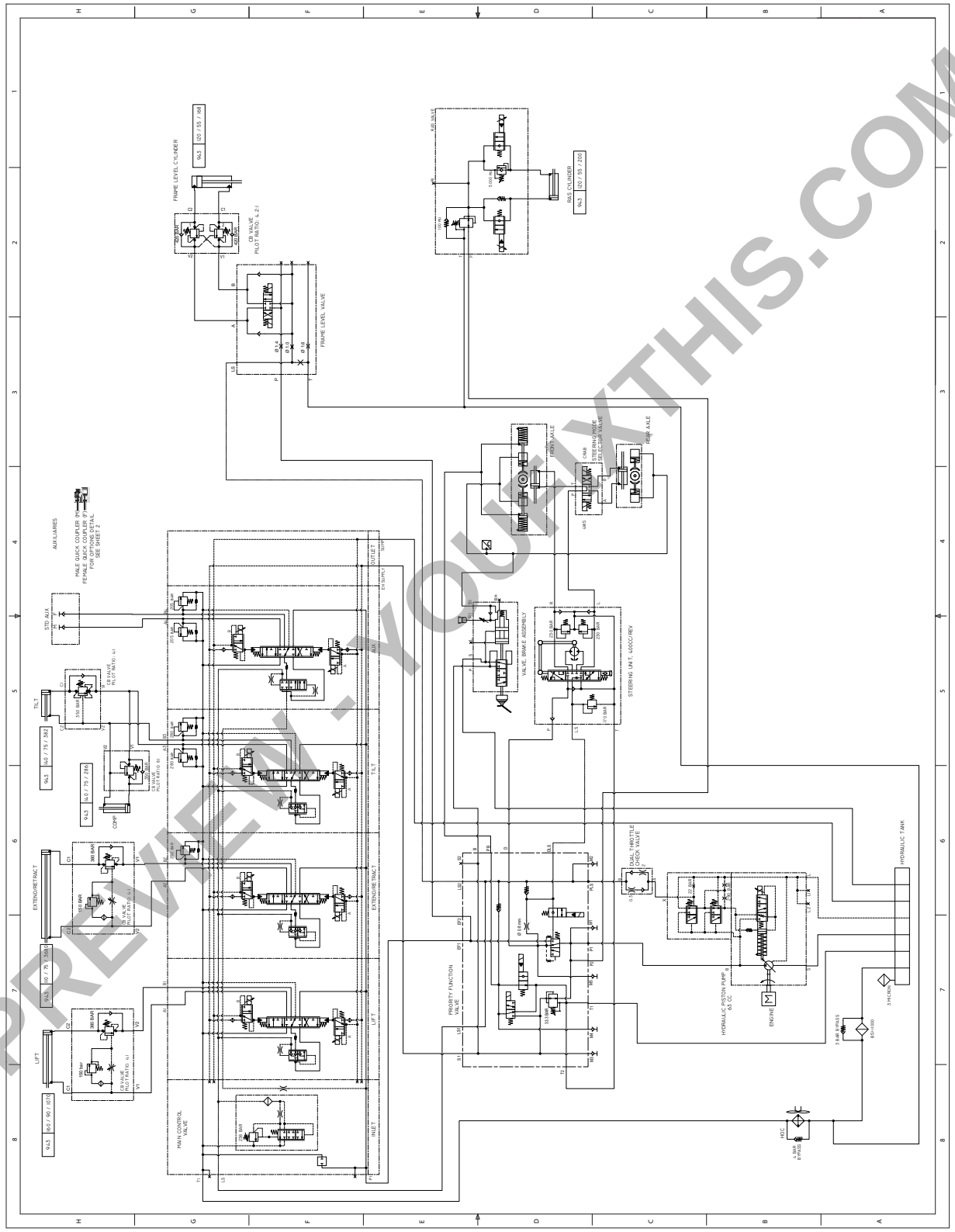
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Message	Fault Code	Indicators	Other Actions Taken	Trigger for Fault	Latch Until
FRAME LEVELING PREVENTED – LOWER BOOM	2577	5000mS	Frame Leveling prevented	Machine Setup's VEHICLE is LBP-PR or LBP-RS and MARKET is not ANSI, or VEHICLE is LBP-HC *(any MARKET)*; Boom Angle Sensor Healthy; operator attempted to frame level and one of the following occurred: • Boom Not Retracted and Boom Angle > +20° (Constant Data • Boom Retracted and Boom Angle > +60° (Constant Data)	Frame Level Left and Right Switches open for 1000mS and one of the following occurred: • Boom Not Retracted and Boom Angle < +19° (Constant Data • Boom Retracted and Boom Angle < +55° (Constant Data)
				Machine Setup's VEHICLE is LBP-PR or LBP-RS; Machine Setup's MARKET is ANSI; Boom Angle Sensor Healthy; operator attempted to frame level and one of the following occurred: • Boom Not Retracted and Boom Angle > +40° (Constant Data • Boom Retracted and Boom Angle > +60° (Constant Data)	Frame Level Left and Right Switches open for 1000mS and one of the following occurred: • Boom Not Retracted and Boom Angle < +38° (Constant Data • Boom Retracted and Boom Angle <+55° (Constant Data)

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8.6.3 943

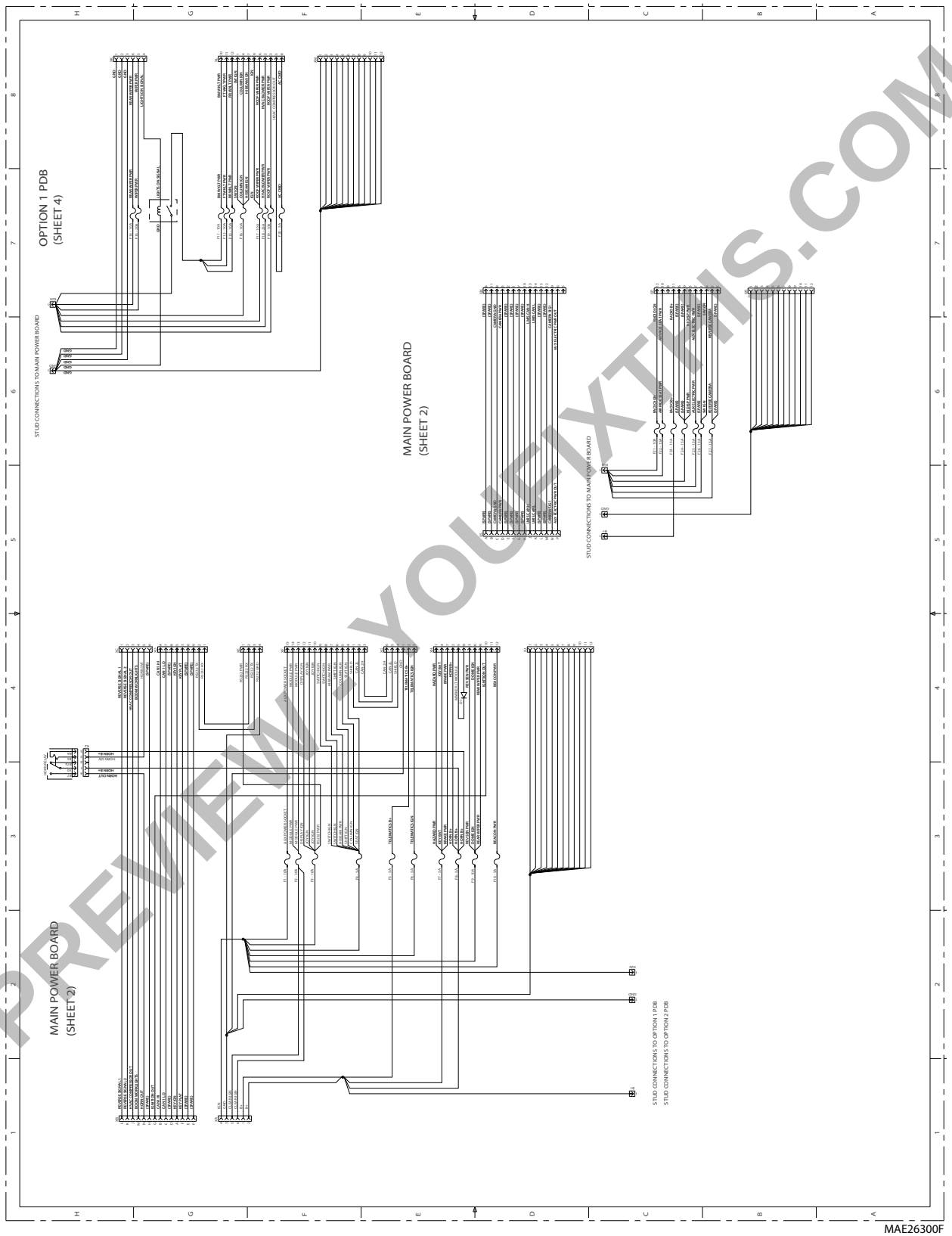


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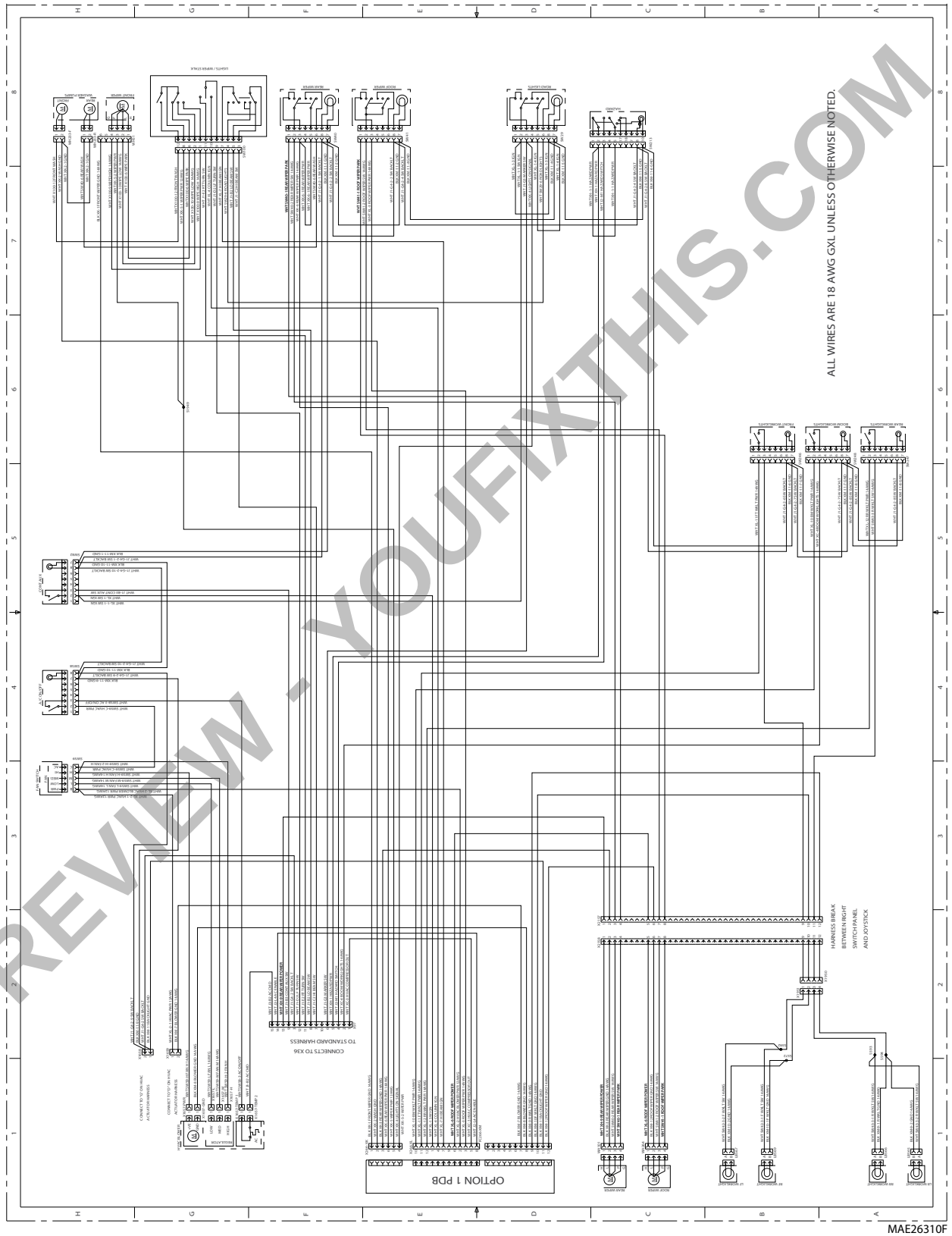
b. Cab Harness Electrical Schematic 2 of 4



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c. Cab Harness Electrical Schematic 3 of 4



MAE26310F

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1.1 INTRODUCTION

This service manual provides general directions for accomplishing service and repair procedures. Following the procedures in this manual will help assure safety and equipment reliability.

Read, understand and follow the information in this manual, and obey all locally approved safety practices, procedures, rules, codes, regulations and laws.

These instructions cannot cover all details or variations in the equipment, procedures, or processes described, nor provide directions for meeting every possible contingency during operation, maintenance, or testing. When additional information is desired consult the local *JLG* dealer.

Many factors contribute to unsafe conditions: carelessness, fatigue, overload, inattentiveness, unfamiliarity, even drugs and alcohol, among others. For optimal safety, encourage everyone to think, and to act, safely.

Appropriate service methods and proper repair procedures are essential for the safety of the individual doing the work, for the safety of the operator, and for the safe, reliable operation of the machine. All references to the right side, left side, front and rear are given from the operator seat looking in a forward direction.

Supplementary information is available from the manufacturer in the form of Service Bulletins, Service Campaigns, Service Training Schools, the service website, other literature, and through updates to the manual itself.

1.2 DISCLAIMER

All information in this manual is based on the latest product information available at the time of publication. The manufacturer reserves the right to make changes and improvements to its products, and to discontinue the manufacture of any product, at its discretion at any time without public notice or obligation.

1.3 OPERATION & SAFETY MANUAL

The mechanic must not operate the machine until the Operation & Safety Manual has been read and understood, training has been accomplished and operation of the machine has been completed under the supervision of an experienced and qualified operator.

An Operation & Safety Manual is supplied with each machine and must be kept in the manual holder located in the cab. In the event that the Operation & Safety Manual is missing, consult the local *JLG* dealer before proceeding.

1.4 DO NOT OPERATE TAGS

Place Do Not Operate Tags on the ignition key switch and the steering wheel before attempting to perform any service or maintenance. Remove key and disconnect battery leads.

1.5 SAFETY INFORMATION

To avoid possible death or injury, carefully read, understand and comply with all safety messages.

In the event of an accident, know where to obtain medical assistance and how to use a first aid kit and fire extinguisher/fire suppression system. Keep emergency telephone numbers (fire department, ambulance, rescue squad/paramedics, police department, etc.) nearby. If working alone, check with another person routinely to help assure personal safety.

1.5.1 Safety Alert System and Signal Words

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

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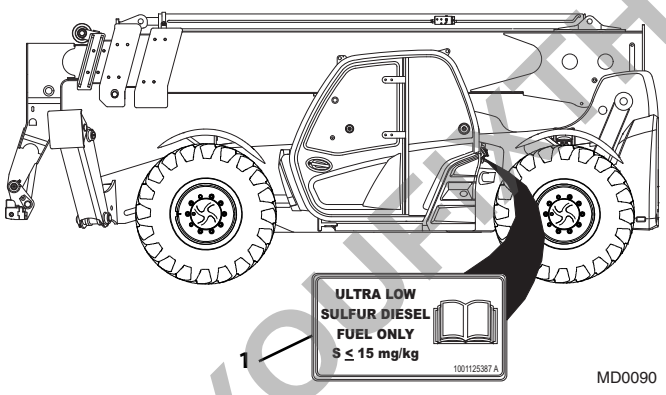
Modifications

Modifications to this machine may affect compliance with Industry Standards and/or Governmental Regulations. Any modification must be approved by JLG.

Machine Configuration

Two configurations of each machine are included in this manual. Determine if machine is equipped with Ultra Low Sulfur Fuel Decal (**1**) as indicated below.

- If equipped with the Ultra Low Sulfur decal, all specific references to this machine configuration will be referred to as Ultra Low Sulfur (**ULS**) from this point forward.
- If **not** equipped with the Ultra Low Sulfur decal, all specific references to this machine configuration will be referred to as Low Sulfur (**LS**) from this point forward.



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2.7.2 Metric Fastener Torque Chart (Continued)

Values for Zinc Yellow Chromate Fasteners (Ref 4150707)*						
CLASS 10.9 METRIC (HEX HEAD) BOLTS, CLASS 10 METRIC NUTS CLASS 12.9 SOCKET HEAD CAP SCREWS M3 - M5*						
Size	**Pitch**	**Tensile Stress Area**	**Clamp Load See Note 4**	**Torque (Dry or Loctite® 263™) K=0.20**	**Torque (Lube or Loctite® 242™ or 271™ or Vibra-TITE™ 111 or 140) K=0.18**	**Torque (Loctite® 262™ or Vibra-TITE™ 131) K=0.15**
		Sq mm	**KN**	**[N.m]**	**[N.m]**	**[N.m]**
3	0.5	5.03	3.13			
3.5	0.6	6.78	4.22			
4	0.7	8.78	5.47			
5	0.8	14.20	8.85			
6	1	20.10	12.5			
7	1	28.90	18.0	25	23	19
8	1.25	36.60	22.8	37	33	27
10	1.5	58.00	36.1	70	65	55
12	1.75	84.30	52.5	125	115	95
14	2	115	71.6	200	180	150
16	2	157	97.8	315	280	235
18	2.5	192	119.5	430	385	325
20	2.5	245	152.5	610	550	460
22	2.5	303	189.0	830	750	625
24	3	353	222.0	1065	960	800
27	3	459	286.0	1545	1390	1160
30	3.5	561	349.5	2095	1885	1575
33	3.5	694	432.5	2855	2570	2140
36	4	817	509.0	3665	3300	2750
42	4.5	1120	698.0	5865	5275	4395

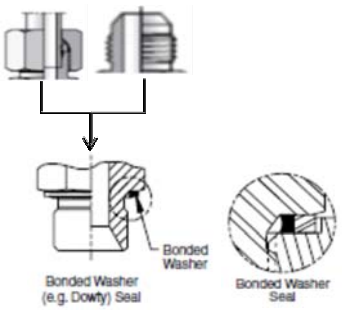
NOTES:
1. THESE TORQUE VALUES DO NOT APPLY TO CADMIUM PLATED FASTENERS
2. ALL TORQUE VALUES ARE STATIC TORQUE MEASURED PER STANDARD AUDIT METHODS TOLERANCE = ±10%
3. * ASSEMBLY USES HARDENED WASHER
4. CLAMP LOAD LISTED FOR SHCS IS SAME AS GRADE 8 OR CLASS 10.9 AND DOES NOT REPRESENT FULL STRENGTH CAPABILITY OF SHCS. IF HIGHER LOAD IS REQUIRED, ADDITIONAL TESTING IS REQUIRED.

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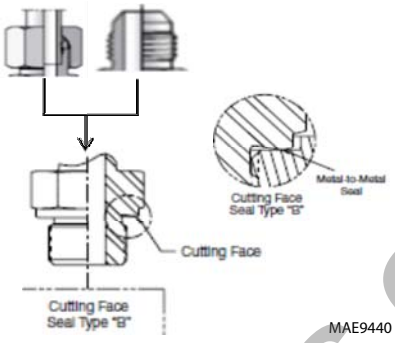
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d. British Standard Parallel Pipe Port (BSPP) S Series - Table 1 of 3



MAE9430



MAE9440

TYPE/FITTING IDENTIFICATION			FORM A** (SEALING WASHER) STUD ENDS WITH (ORFS) OR S SERIES DIN (MBTS) OPPOSITE END						FORM B** (CUTTING FACE) STUD ENDS WITH (ORFS) OR S SERIES DIN (MBTS) OPPOSITE END					
Material	BSPP Thread G Size	Connecting Tube O.D.	Torque						Torque					
			[Ft-Lb]			[Nm]			[Ft-Lb]			[Nm]		
		(mm)	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
STEEL FITTINGS WITH STEEL MATING COMPONENTS; UN-LUBRICATED THREADS	G 1/4A	6	26	28	29	35	38	39	41	43	45	55	58	61
	G 1/4A	8	26	28	29	35	38	39	41	43	45	55	58	61
	G 3/8A	10	33	35	36	45	47	49	66	70	73	90	95	99
	G 3/8A	12	33	35	36	45	47	49	66	70	73	90	95	99
	G 1/2A	14	48	51	53	65	69	72	111	117	122	150	159	165
	G 1/2A	16	48	51	53	65	69	72	96	101	106	130	137	144
	G 3/4A	20	66	70	73	90	95	99	199	209	219	270	283	297
	G 1A	25	111	117	122	150	159	165	251	264	276	340	358	374
	G 1-1/4A	30	177	186	195	240	252	264	398	418	438	540	567	594
	G 1-1/2A	38	214	225	235	290	305	319	516	542	568	700	735	770
Material	BSPP Thread G Size	Connecting Tube O.D.	Torque						Torque					
			[Ft-Lb]			[Nm]			[Ft-Lb]			[Nm]		
		(mm)	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
ALUMINUM/ BRASS FITTINGS OR ALUMINUM/ BRASS MATING COMPONENTS; UN-LUBRICATED THREADS	G 1/4A	6	17	18	19	23	24	26	27	28	29	37	38	39
	G 1/4A	8	17	18	19	23	24	26	27	28	29	37	38	39
	G 3/8A	10	21	22	23	28	30	31	43	45	47	58	61	64
	G 3/8A	12	21	22	23	28	30	31	43	45	47	58	61	64
	G 1/2A	14	31	33	34	42	45	46	72	76	79	98	103	107
	G 1/2A	16	31	33	34	42	45	46	62	66	69	84	89	94
	G 3/4A	20	43	45	47	58	61	64	129	136	142	175	184	193
	G 1A	25	72	76	79	98	103	107	163	171	179	221	232	243
	G 1-1/4A	30	115	121	127	156	164	172	259	272	285	351	369	386
	G 1-1/2A	38	139	146	153	188	198	207	335	352	369	454	477	500

NOTE: ** Non typical for Straight Male Stud Fittings, reference only.

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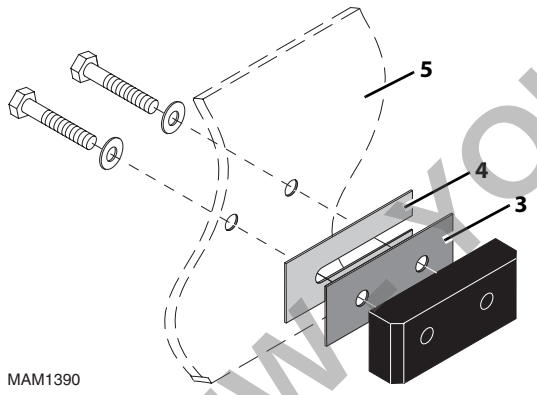
3.12.2 Boom Wear Pad Installation, Lubrication

The boom has been factory lubricated for proper wear pad break-in and will normally require minor further lubrication. However, after replacing any wear pad(s), or after prolonged periods of inoperation, lubrication of the boom wear surfaces is recommended to keep the boom wear surfaces lubricated properly. Refer to Section 2.3, "Fluid and Lubricant Capacities", for appropriate lubricants to be used.

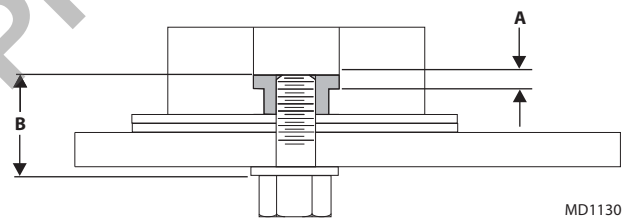
Lubrication of the boom wear surfaces is also recommended when the machine is stored, to help prevent rusting.

The following wear pad procedure must be followed to insure the proper wear pad installation:

- Maintain a total boom section clearance between the side/top wear pad(s) and the next boom section (**2**) is 0.019 - 0.059 in (0,5 - 1,5 mm).
- The wear pad inserts and mounting bolts MUST be clean before mounting bolts are installed.
- Refer to Section 2.8.1, "Definitions".



- A spacer (**3**) with holes must be used before any shim (**4**) is used.
- A shim (**4**) must inserted between the spacer (**3**) and wear pad support plate, block or boom section (**5**).
- The number of shims can vary at each shim point.
- The bottom wear pads must be shimmed equally on each side.



- The length of the wear pad bolt depends on the number of shims, spacers and washers being used.
- The bolt length can be ± 0.004 in (±1,0 mm) from the face of the insert.
- The bolt length should be determined by measuring the distance from the face of the insert to the face of the boom (**B**) including any spacer, shim(s) and washer(s).
- One or two hardened washers are to be used on each wear pad bolt except where noted otherwise. **DO NOT** use more than two hardened washers.
- Use only one hardened washer if mounting bolts are recessed.
- Torque wear pad bolts as required.
- Lubricate the face and pockets of each wear pad after being installed.

Boom Section Wear Pad Pathway Lubrication:

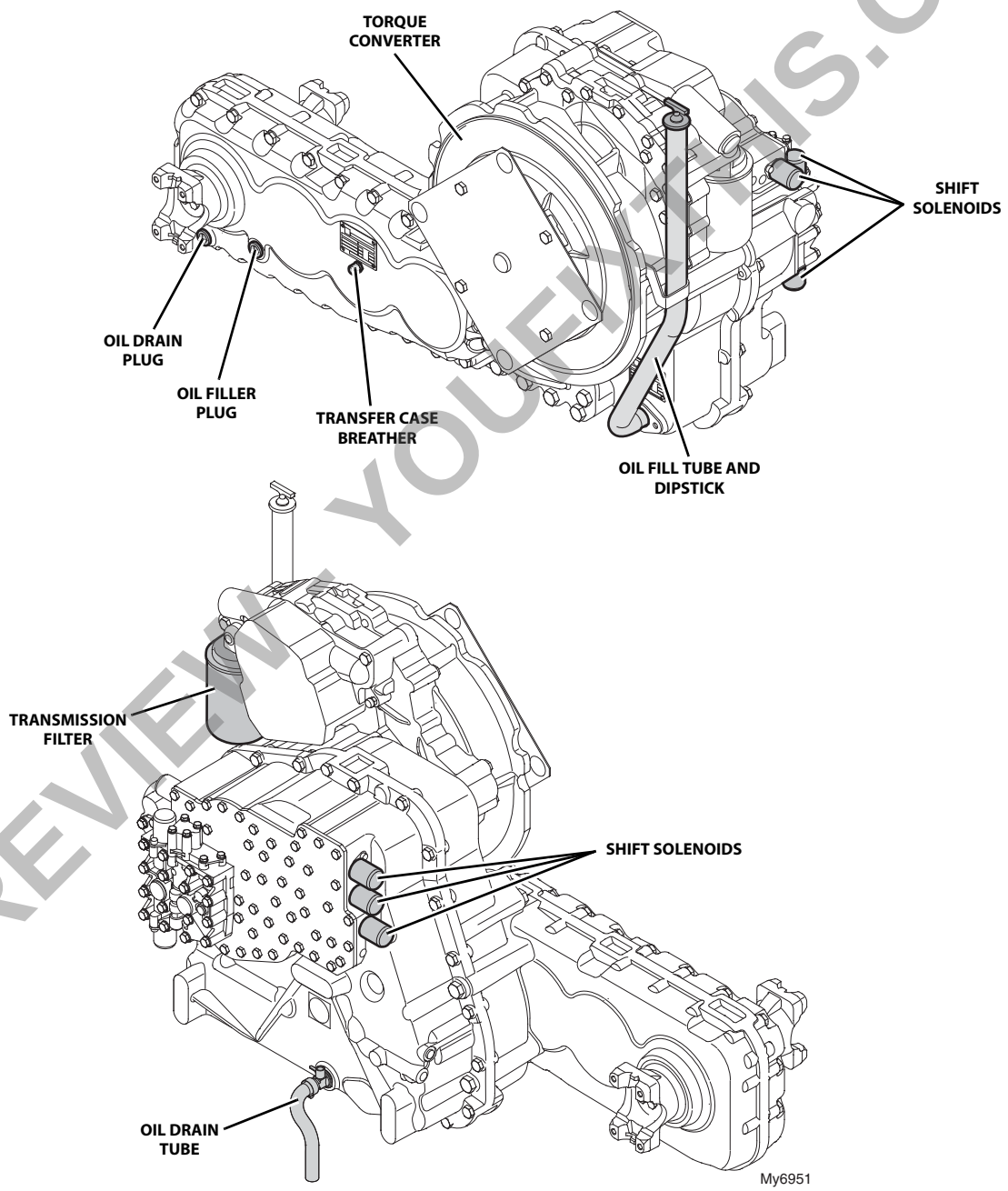
- Clean and lightly grease all wear pad pathways with Multipurpose Grease.
- Clean and lightly grease the hose carrier guide bar pathway with Multipurpose Grease.

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6.1 TRANSMISSION ASSEMBLY COMPONENT TERMINOLOGY

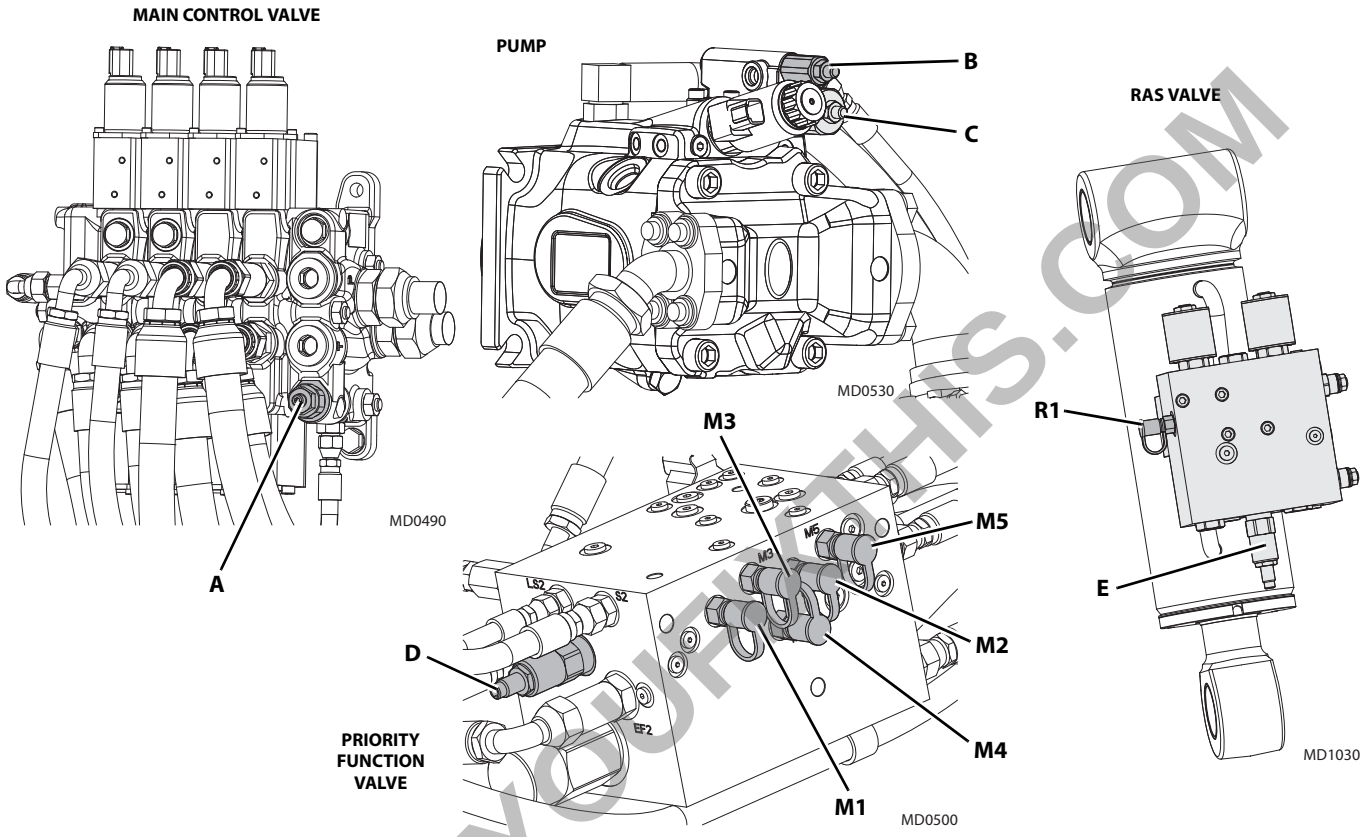
To understand the safety, operation and maintenance information presented in this section, it is necessary that the operator/mechanic be familiar with the names and locations of the major assemblies of the transmission. The following illustration identifies the components that are referred to throughout this section.



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e. Pressure Specifications - 943, 1043, 1055, 1255



Note: *All pressures must be checked in numerical order.*

	Hydraulic Circuit	Test Port	Procedure	Adjustment Location	Range/Nominal Pressure	Notes
1	Standby (1)	**M1**	Connect gauge to M1 port, run engine at low idle, no function.	P (**B**)	330-410 psi (22,7-28,2 bar) **370 psi (25,5 bar)**	Park Brake - ON
2	Load Sense	**M2**	Connect gauge to M2 port, run engine at low idle, no function.	N/A	40-90 psi (2,75-6,25 bar) **65 psi (4,5 bar)**	Park Brake - ON
3	Margin		(1) Standby Pressure, subtract (2) LS Pressure = Margin Pressure	Calculation	290-319 psi (20-22 bar) **305 psi (21 bar)**	Park Brake - ON
4	Standby (2)	**M1**	Connect gauge to M1 port, run engine at low idle, no function. Turn Park Brake OFF.	Priority (**D**)	750-820 psi (51,7-56,6 bar) **785 psi (54,1 bar)**	Park Brake switch turned OFF. Make sure M2, M3 & M4 read 460-500 psi (32-35 bar)
5	Main System Pressure Cutoff	**M1**	Connect gauge to M1 port, run engine at low idle, stall lift down.	MCV (**A**)	3726-3814 psi (257-263 bar) **3770 psi (260 bar)**	Park Brake - ON

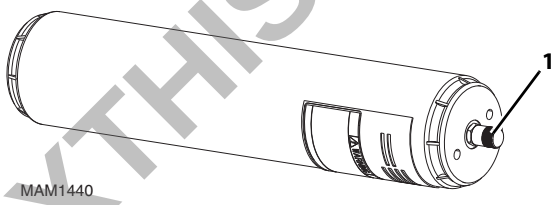
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The PGLS utilizes pilot pressure from the boom lower section of the main control valve. When the boom lower command is initiated from the joystick, pilot pressure builds at the PGLS valve that is proportional to joystick position. This pilot pressure at the PGLS valve block shifts the main spool in the PGLS valve. When this main spool shifts, oil is able to flows through the PGLS valve block allowing gravity to lower the boom.
The speed at which the boom lowers is dictated by the pilot pressure signal from the joystick.
Since the PGLS utilizes gravity and pilot pressure, the boom should be lowered at low engine speed to optimize control and boom lower speeds.

8.12 BOOM RIDE CONTROL

8.12.1 General Accumulator Information

The accumulator is a pneumatic, piston type accumulator that is operated by compressed gas. Gas and hydraulic oil occupy the same container. When oil pressure rises, incoming oil compresses the gas. When oil pressure drops, the gas expands, forcing the oil out into the lift side of the lift/lower cylinder.
The gas is separated from the oil by a piston. This prevents the mixing of gas and oil and keeps gas out of the hydraulic system.

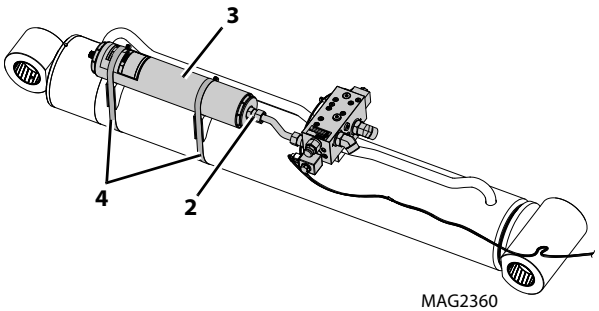


The accumulator comes “pre-charged”. If not charged, accumulator may need to be charged.

a. Accumulator Removal

1. Remove any attachment from the machine. Park the machine on a firm level surface and fully retract the boom. Raise the boom to allow sufficient work space around the lift/lower cylinder to allow the accumulator to be removed. Support the boom. Place the transmission in (N) NEUTRAL, engage the park brake, shut the engine OFF and chock wheels.
2. Place a Do Not Operate Tag on both the ignition key switch and the steering wheel.
3. Open the engine cover. Allow the system fluids to cool.
4. Properly disconnect the battery. Refer Section 9.8, “Battery”, for procedure.

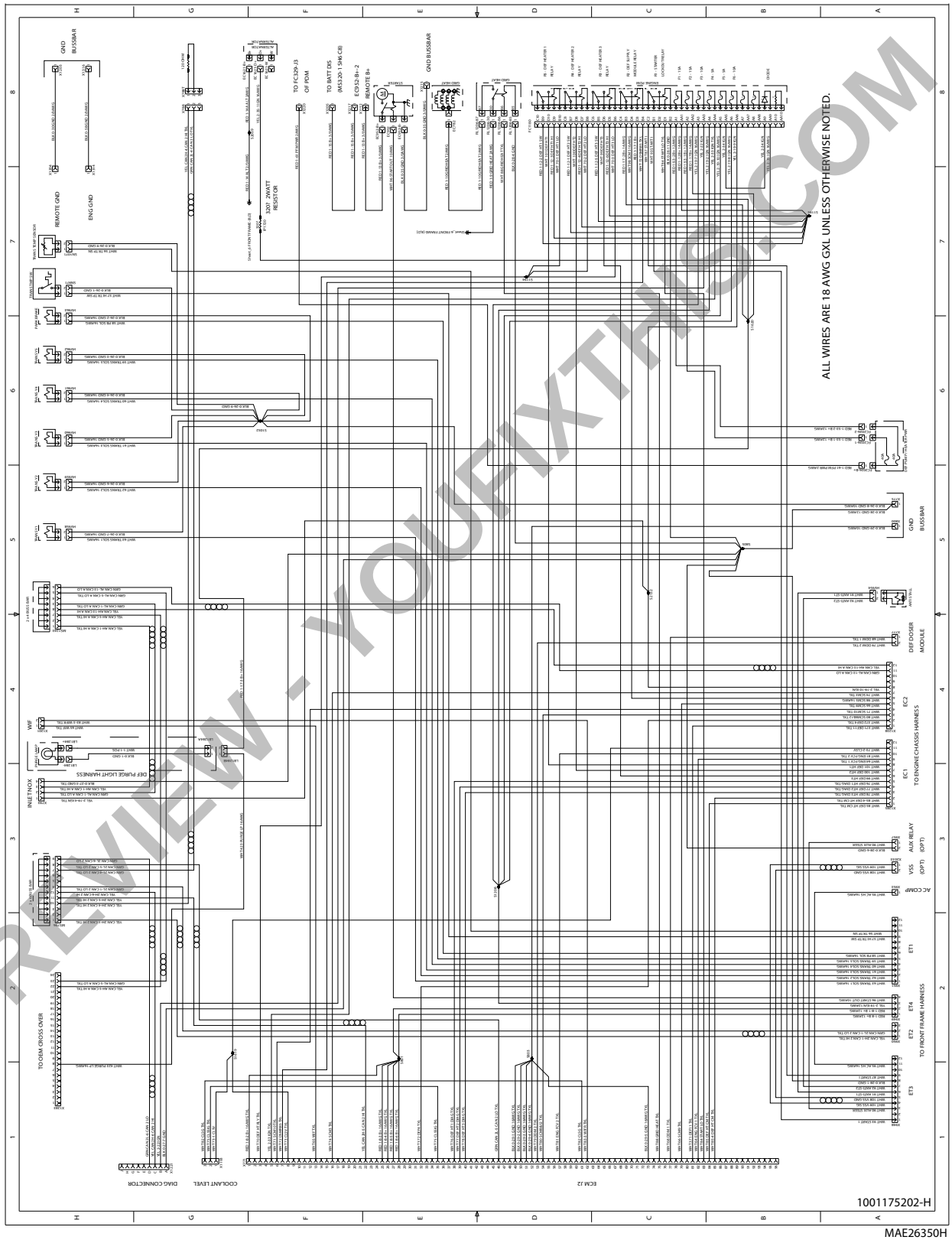
642, 943, 1043



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h. ULS 110HP (82Kw) Engine Harness (1 of 2)

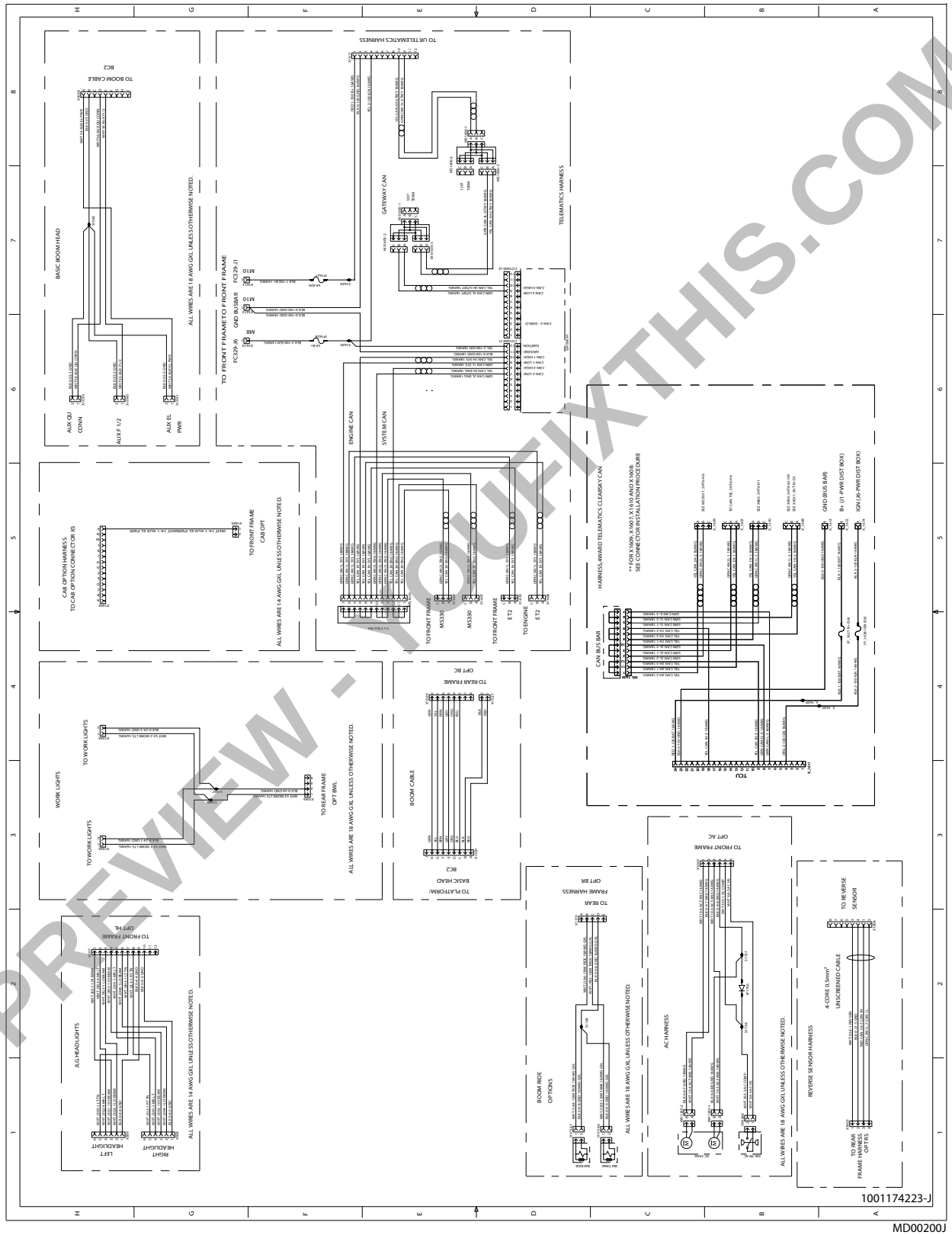


MAE26350H

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j. Option Harness

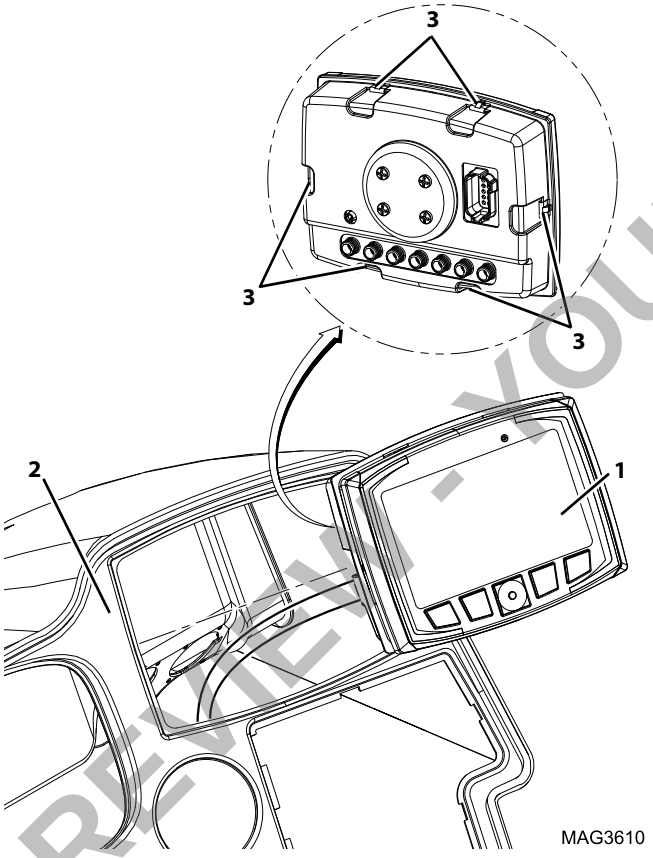


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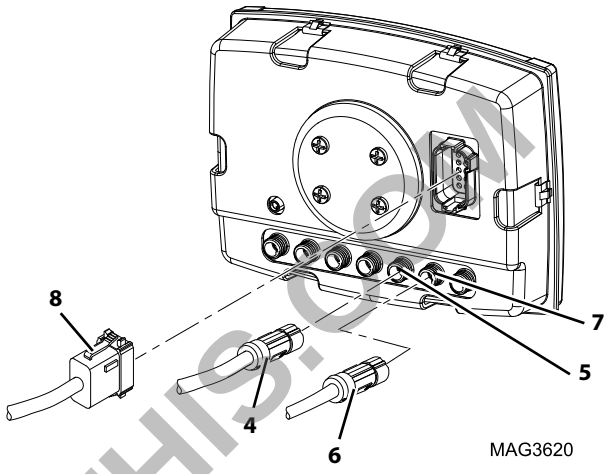
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9.16.2 Removal

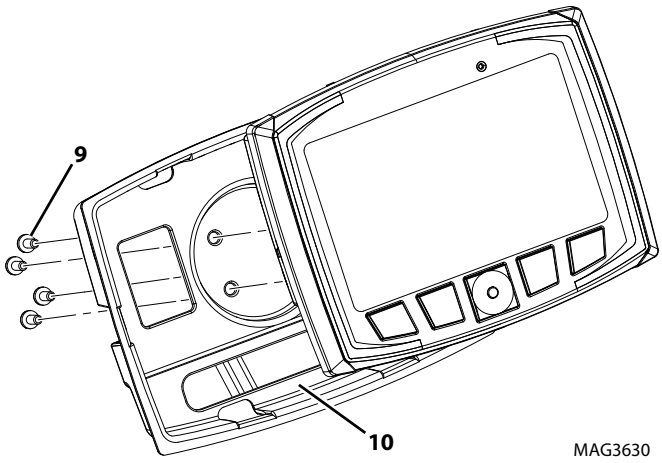
1. Park machine on a firm, level surface, level machine, fully retract boom, lower boom, place transmission in (N) NEUTRAL, engage park brake and shut the engine OFF.
2. Place a Do Not Operate Tag on both ignition key switch and steering wheel.
3. Open engine cover. Allow system fluids to cool.
4. Properly disconnect the battery. Refer to Section 9.8, "Battery", for procedure.
5. Remove and retain recirculation grille cover, lower dash panel and left side cover from the dash.



6. Press and release the clips (**3**) to all side of the multifunction display (**1**). Remove multifunction display (**1**) assembly from the dash (**2**).



7. Label and disconnect the USB programming cable (**4**) from the port "E" (**5**).
8. If equipped, label and disconnect the multifunction display video cable (**6**) from the port "F" (**7**).
9. Label and disconnect the electrical conductor (**8**) from the multifunction display (**1**).



10. Remove and retain four screws (**9**) securing the mounting bracket (**10**).
11. Install four screws (**9**) on the multifunction display.

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9.18.7 Line Contactor Open-Circuit (31x)

Message	Fault Code	Indicators	Other Actions Taken	Trigger for Fault	Latch Until
IGNITION RELAY PERMANENTLY OFF	316	Continuously	Hydraulic functions are prevented Refer to System Power Strategy Functionality	At startup, Ignition Voltage < 4.0V after CCM J1-H3 Ignition Relay is energized	Power cycled

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Message	Fault Code	Indicators	Other Actions Taken	Trigger for Fault	Latch Until
TRANS 1ST GEAR COIL – OPEN CIRCUIT	4660	5000mS	The following actions shall occur when Calibration's TRANS SERVICE is NO: • Direction Selection forced to Neutral • FFCM J2-H4 Transmission Fwd Low Solenoid prevented • FFCM J2-G4 Transmission Fwd High Solenoid prevented • FFCM J1-E4 Transmission Reverse Solenoid prevented • FFCM J1-D4 Transmission 1ST Gear Solenoid prevented • FFCM J3-C1 Transmission 2ND Gear Solenoid prevented • FFCM J1-A3 Transmission 3RD Gear Solenoid prevented	Turner Transmission Configured; open-circuit detected on FFCM J1-D4	Power cycled
			The following actions shall occur when Calibration's TRANS SERVICE is NO: • Direction Selection forced to Neutral • FFCM J2-H4 Transmission Forward Solenoid prevented • FFCM J1-E4 Transmission Reverse Solenoid prevented • FFCM J1-D4 Transmission 1ST Gear Solenoid prevented • FFCM J3-C1 Transmission 2ND Gear Solenoid prevented	Machine Setup's TRANSMISSION is DANA 3SPD; open-circuit detected on FFCM J1-D4	
			The following actions shall occur when Calibration's TRANS SERVICE is NO: • Direction Selection forced to Neutral • FFCM J2-G4 Transmission Forward Solenoid prevented • FFCM J1-E4 Transmission Reverse Solenoid prevented • FFCM J1-D4 Transmission 1ST Gear Solenoid prevented • FFCM J3-C1 Transmission 2ND Gear Solenoid prevented	Machine Setup's TRANSMISSION is HC HYSTAT; open-circuit detected on FFCM J1-D4	

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SPN	FMI	Fault Code	SPN Description	Description
102	2	2973	Engine Intake Manifold #1 Pressure	Intake Manifold 1 Pressure - Data erratic, intermittent or incorrect
102	10	3361	Engine Intake Manifold #1 Pressure	Intake Manifold 1 Pressure - Abnormal rate of change
103	16	595	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Moderately Severe Level
103	2	686	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data erratic, intermittent or incorrect
103	18	687	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Below Normal Operating Range - Moderately Severe Level
103	15	2288	Engine Turbocharger 1 Speed	Turbocharger 1 Speed - Data Valid But Above Normal Operating Range - Least Severe Level
104	18	3917	Engine Turbocharger Lube Oil Pressure 1	Engine Turbocharger Lube Oil Pressure - Data Valid But Below Normal Operating Range - Moderately Severe Level
105	3	153	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature Sensor Circuit - Voltage above normal, or shorted to high source
105	4	154	Engine Intake Manifold 1Temperature	Intake Manifold 1 Temperature Sensor Circuit - Voltage below normal, or shorted to low source
105	0	155	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature - Data valid but above normal operational range - Most Severe Level
105	2	436	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature - Data erratic, intermittent or incorrect
105	16	488	Engine Intake Manifold Temperature	Intake Manifold 1 Temperature - Data Valid But Above Normal Operating Range - Moderately Severe Level
105	15	2964	Engine Intake Manifold #1 Temperature	Intake Manifold 1 Temperature - Data Valid But Above Normal Operating Range - Least Severe Level
105	18	3385	Engine Intake Manifold 1 Temperature	Intake Manifold 1 Temperature - Data Valid But Below Normal Operating Range - Moderately Severe Level
107	16	3341	Engine Air Filter 1 Differential Pressure	Engine Air Filter Differential Pressure - Data Valid But Above Normal Operating Range - Moderately Severe Level
107	15	5576	Engine Air Filter 1 Differential Pressure	Engine Air Filter Differential Pressure - Data Valid But Above Normal Operating Range - Least Severe Level
108	3	221	Barometric Pressure	Barometric Pressure Sensor Circuit - Voltage above normal, or shorted to high source

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