Illustrated Parts Manual

Models
3508PS, 3509PS
3512PS, 3513PS
4008PS, 4009PS
4012PS, 4013PS
4017PS

Agrovector
40.8, 40.9

Prior to SN 1160006866 excluding
1160006594, 1160006604, 1160006748,
1160006752, 1160006755, 1160006756

31200204

September 7, 2017

An Oshkosh Corporation Company

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

TABLE OF CONTENTS

SECTION 1 - FRAME AND ATTACHING PARTS 9

FIGURE 1-1. FRAME SHROUDING AND ATTACHING PARTS, RIGHT SIDE 10
FIGURE 1-2. FRAME SHROUDING AND ATTACHING PARTS, LEFT SIDE 16
FIGURE 1-3. AXLE AND FENDER INSTALLATION 20
FIGURE 1-4. OUTRIGGER INSTALLATION (12M & 13M) 24
FIGURE 1-5. OUTRIGGER INSTALLATION (17M) 26
FIGURE 1-6. DRAW BAR COUPLING INSTALLATION 28
FIGURE 1-7. SITE HITCH INSTALLATION 30
FIGURE 1-8. TRAILER HITCH INSTALLATION (Prior to SN 116005199) 32
FIGURE 1-9. AUTO HITCH, PIN HITCH AND PITON FRAME-AUTO HITCH (SN 1160003924 to Present) 34
FIGURE 1-10. PIN HITCH - CUNA C AND CUNA D2 (SN 1160003924 to Present) 36
FIGURE 1-11. HYDRAULIC HITCH INSTALLATION (8M & 9M) (Prior to SN 1160003924) 38
FIGURE 1-12. HYDRAULIC HITCH INSTALLATION (8M & 9M) (SN 1160003924 to Present) 40
FIGURE 1-13. TRAILER PLUG 42

SECTION 2 - BOOM 45

FIGURE 2-1. BOOM INSTALLATION (8M & 9M) 46
FIGURE 2-2. BOOM INSTALLATION (12M & 13M) 48
FIGURE 2-3. BOOM INSTALLATION (17M) 50
FIGURE 2-4. BOOM PIN INSTALLATION 52
FIGURE 2-5. FIRST BOOM SECTION ASSEMBLY (8M & 9M) 54
FIGURE 2-6. FIRST BOOM SECTION ASSEMBLY (12M & 13M) 56
FIGURE 2-7. FIRST BOOM SECTION ASSEMBLY (17M) 58
FIGURE 2-8. SECOND BOOM SECTION ASSEMBLY (8M & 9M) 60
FIGURE 2-9. SECOND BOOM SECTION ASSEMBLY (12M & 13M) 62
FIGURE 2-10. SECOND BOOM SECTION ASSEMBLY (17M) 64
FIGURE 2-11. THIRD BOOM SECTION ASSEMBLY (12M & 13M) 68
FIGURE 2-12. THIRD BOOM SECTION ASSEMBLY (17M) 70
FIGURE 2-13. FOURTH BOOM SECTION ASSEMBLY (17M) 74
FIGURE 2-14. QUICK ATTACH ASSEMBLY, MECHANICAL AND HYDRAULIC QUICK ATTACH 78
FIGURE 2-15. MANITOU QUICK ATTACH (13M & 17M) 82
FIGURE 2-16. BOOM ASSEMBLY, IF EQUIPPED FOR PLATFORM (13M) 84
FIGURE 2-17. BOOM ASSEMBLY, IF EQUIPPED FOR PLATFORM (17M) 86
FIGURE 2-18. PLATFORM SENSOR INSTALLATION (13M) 88

SECTION 3 - ATTACHMENTS 91

FIGURE 3-1. MANURE BUCKET (8M & 9M) 92
FIGURE 3-2. MULTI-PURPOSE BUCKET 94
FIGURE 3-3. BUCKETS (12M, 13M & 17M) 96
FIGURE 3-4. FORK MOUNTED HOOK 98
FIGURE 3-5. CRANE HOOK (13M & 17M) 100
FIGURE 3-6. CONCRETE BUCKET 102
FIGURE 3-7. CARRIAGE ASSEMBLY 104
FIGURE 3-8. SIDE SHIFT CARRIAGE ASSEMBLY 106
FIGURE 3-9. FORK TINES 108
FIGURE 3-10. TRUSS BOOM 110
FIGURE 3-11. FORK POSITIONING CARRIAGE W/FORKS (13M & 17M) 112
FIGURE 3-12. FIXED PLATFORM INSTALLATION (13M & 17M) 114
FIGURE 3-13. EXTENDABLE PLATFORM INSTALLATION (13M & 17M) 118
FIGURE 3-14. EXTENDABLE PLATFORM ASSEMBLY (13M & 17M) 122
FIGURE 3-15. CONSOLE BOX ASSEMBLY (13M & 17M) 124
FIGURE 3-16. MANITOU CARRIAGE (13M & 17M) 128

SECTION 4 - ENGINE AND ATTACHING PARTS 131

FIGURE 4-1. ENGINE INSTALLATION 132
FIGURE 4-2. ENGINE ASSEMBLY (Prior to SN 1160003927) 134
FIGURE 4-3. ENGINE ASSEMBLY (SN 1160003927 to Present) 136
FIGURE 4-4. FUEL TANK AND LINES (Prior to SN 1160003927) 140
FIGURE 4-5. FUEL TANK AND LINES (SN 1160003927 to Present) 142
FIGURE 4-6. COOLING SYSTEM INSTALLATION 144
FIGURE 4-7. AIR FILTER INSTALLATION 148
FIGURE 4-8. MUFFLER INSTALLATION 150

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

FIGURE 4-9. AC PUMP INSTALLATION 152
FIGURE 4-10. TRANSMISSION ASSEMBLY 154
FIGURE 4-11. TRANSMISSION ASSEMBLY - CONVERTER HOUSING 156
FIGURE 4-12. TRANSMISSION ASSEMBLY - CASE AND PLATE 158
FIGURE 4-13. TRANSMISSION ASSEMBLY - TORQUE CONVERTER 160
FIGURE 4-14. TRANSMISSION ASSEMBLY - GEAR GROUP 3 SPEED 162
FIGURE 4-15. TRANSMISSION ASSEMBLY - GEAR GROUP 4 SPEED 164
FIGURE 4-16. TRANSMISSION ASSEMBLY - PUMP DRIVE GROUP 166
FIGURE 4-17. TRANSMISSION ASSEMBLY - CHARGE PUMP 168
FIGURE 4-18. TRANSMISSION ASSEMBLY - REVERSE IDLER 170
FIGURE 4-19. TRANSMISSION ASSEMBLY - FORWARD AND REVERSE SHAFT 172
FIGURE 4-20. TRANSMISSION ASSEMBLY - 3RD SHAFT 174
FIGURE 4-21. TRANSMISSION ASSEMBLY - 3RD AND HIGH (4TH) SHAFT 176
FIGURE 4-22. TRANSMISSION ASSEMBLY - 1ST AND 2ND SHAFT 178
FIGURE 4-23. TRANSMISSION ASSEMBLY - OUTPUT SHAFT 180
FIGURE 4-24. TRANSMISSION ASSEMBLY - CONTROL AND MODULATION VALVE ASSEMBLY 182
FIGURE 4-25. TRANSMISSION ASSEMBLY - DRIVE PLATE 184
FIGURE 4-26. TRANSMISSION ASSEMBLY - DROP BOX 186

SECTION 5 - DRIVE TRAIN 189

FIGURE 5-1. FRONT AXLE ASSEMBLY (8M, 9M, 12M & 13M) 190
FIGURE 5-2. FRONT AXLE ASSEMBLY (17M) 192
FIGURE 5-3. FRONT AXLE ASSEMBLY - CENTRAL HOUSING AND STEERING 194
FIGURE 5-4. FRONT AXLE ASSEMBLY - DIFFERENTIAL 196
FIGURE 5-5. FRONT AXLE ASSEMBLY - HUB REDUCTION (8M, 9M, 12M & 13M) 198
FIGURE 5-6. FRONT AXLE ASSEMBLY - HUB REDUCTION (17M) 202
FIGURE 5-7. FRONT AXLE ASSEMBLY - BRAKE COMPONENTS (8M, 9M, 12M & 13M) 206
FIGURE 5-8. FRONT AXLE ASSEMBLY - BRAKE COMPONENTS (17M) 208
FIGURE 5-9. REAR AXLE ASSEMBLY 210
FIGURE 5-10. REAR AXLE ASSEMBLY - CENTRAL HOUSING AND STEERING 212
FIGURE 5-11. REAR AXLE ASSEMBLY - DIFFERENTIAL 214
FIGURE 5-12. REAR AXLE ASSEMBLY - EXTERNAL AXLE COMPONENTS 216
FIGURE 5-13. REAR AXLE ASSEMBLY - BRAKE COMPONENTS 220
FIGURE 5-14. DRIVE TRAIN INSTALLATION 222
FIGURE 5-15. TIRE AND WHEEL ASSEMBLY 224

SECTION 6 - CAB 227

FIGURE 6-1. CAB INSTALLATION 228
FIGURE 6-2. CAB ASSEMBLY 232
FIGURE 6-3. INTERIOR INSTALLATION 238
FIGURE 6-4. CAB DOOR AND WINDOW INSTALLATION 240
FIGURE 6-5. WIPER SYSTEM INSTALLATION 244
FIGURE 6-6. SEAT INSTALLATION 246
FIGURE 6-7. HEATER INSTALLATION AND CIRCULATION 248
FIGURE 6-8. AIR CONDITIONING UNIT INSTALLATION 250
FIGURE 6-9. FRONT CAB GLASS SHIELD 254

SECTION 7 - CONTROLS 257

FIGURE 7-1. STEERING CONTROL INSTALLATION 258
FIGURE 7-2. BRAKE INSTALLATION 260
FIGURE 7-3. THROTTLE INSTALLATION 262
FIGURE 7-4. PARKING BRAKE INSTALLATION (8M, 9M, 12M & 13M) 264
FIGURE 7-5. MECHANICAL HAND BRAKE ASSEMBLY 268
FIGURE 7-6. JOYSTICK CONTROLLER 270

SECTION 8 - HYDRAULIC CIRCUITS 273

FIGURE 8-1. SUPPLY CIRCUIT 274
FIGURE 8-2. STEERING SUPPLY 278
FIGURE 8-3. SERVICE/PARK BRAKE 280
FIGURE 8-4. LIFT CYLINDER (8M, 9M, 12M & 13M) 286
FIGURE 8-5. LIFT CYLINDER (9M & 13M) 288
FIGURE 8-6. LIFT CYLINDER (17M) 290
FIGURE 8-7. LIFT CYLINDER (17M) 292

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >

FIGURE 8-8. EXTEND/RETRACT CYLINDER (8M & 9M) 294
FIGURE 8-9. EXTEND/RETRACT CYLINDER (12M & 13M) 296
FIGURE 8-10. EXTEND/RETRACT CYLINDER (17M) 298
FIGURE 8-11. TILT AND TILT COMPENSATION (8M & 9M) 300
FIGURE 8-12. TILT AND TILT COMPENSATION (12M & 13M) 304
FIGURE 8-13. TILT AND TILT COMPENSATION (17M) 308
FIGURE 8-14. AUXILIARY FUNCTION (8M & 9M) 310
FIGURE 8-15. AUXILIARY FUNCTION (12M & 13M) 312
FIGURE 8-16. AUXILIARY FUNCTION (17M) 314
FIGURE 8-17. HOSE AND CABLE CARRIER INSTALLATION (17M) 316
FIGURE 8-18. FRAME LEVEL AND NON-FRAME LEVEL HYDRAULICS (8M & 9M) 318
FIGURE 8-19. FRAME LEVEL AND OUTRIGGER (12M, 13M & 17M) 320
FIGURE 8-20. BOOM REAR AUXILIARY (8M & 9M) 324
FIGURE 8-21. TRAILER BRAKE INSTALLATION (8M & 9M) 326
FIGURE 8-22. BRAKE ACCUMULATOR INSTALLATION (17M) 328

SECTION 9 - HYDRAULIC COMPONENTS 331

FIGURE 9-1. LIFT CYLINDER (8M) (Prior to SN 1160005745) 332
FIGURE 9-2. LIFT CYLINDER (8M) (SN 1160005745 to Present) 334
FIGURE 9-3. LIFT CYLINDER (9M & 13M) (Prior to SN 1160005648) 336
FIGURE 9-4. LIFT CYLINDER (9M & 13M) (SN 1160005648 to Present) 338
FIGURE 9-5. LIFT CYLINDER (12M) 340
FIGURE 9-6. LIFT CYLINDER (17M) (Prior to SN 1160005738) 342
FIGURE 9-7. LIFT CYLINDER (17M) (SN 1160005738 to Present) 344
FIGURE 9-8. EXTEND/RETRACT CYLINDER (8M) 346
FIGURE 9-9. EXTEND/RETRACT CYLINDER (9M) 348
FIGURE 9-10. EXTEND/RETRACT CYLINDER (12M) 350
FIGURE 9-11. EXTEND/RETRACT CYLINDER (13M) 352
FIGURE 9-12. EXTEND/RETRACT CYLINDER (17M) 354
FIGURE 9-13. EXTEND/RETRACT CYLINDER (17M) 356
FIGURE 9-14. TILT CYLINDER 358
FIGURE 9-15. TILT CYLINDER 360
FIGURE 9-16. COMPENSATION CYLINDER 362
FIGURE 9-17. COMPENSATION CYLINDER 364
FIGURE 9-18. FRAME LEVEL CYLINDER 366
FIGURE 9-19. FRAME LEVEL CYLINDER 368
FIGURE 9-20. OUTRIGGER CYLINDER ASSEMBLY (12M & 13M) 370
FIGURE 9-21. OUTRIGGER CYLINDER ASSEMBLY (17M) 372
FIGURE 9-22. OUTRIGGER CYLINDER ASSEMBLY (17M) 374
FIGURE 9-23. FORK LOCKING CYLINDER ASSEMBLY 376
FIGURE 9-24. FORK LOCKING CYLINDER ASSEMBLY 378
FIGURE 9-25. MAIN CONTROL VALVE ASSEMBLY 380
FIGURE 9-26. HYDRAULIC TANK INSTALLATION 384
FIGURE 9-27. BRAKE CYLINDER (Prior to SN 1160005851) 386
FIGURE 9-28. BRAKE CYLINDER (SN 1160005851 to Present) 388
FIGURE 9-29. DIVERTER VALVE (Prior to SN 1160005127) 390
FIGURE 9-30. DIVERTER VALVE (SN 1160005127 to Present) 392
FIGURE 9-31. PISTON PUMP 394
FIGURE 9-32. FRAME LEVEL VALVE 396
FIGURE 9-33. OUTRIGGER AND FRAME LEVEL VALVE (12M, 13M & 17M) 398
FIGURE 9-34. STEERING SELECT VALVE 400
FIGURE 9-35. AUXILIARY DIVERTER VALVE 402
FIGURE 9-36. ACTUATOR ASSEMBLY 404

SECTION 10 - ELECTRICAL 407

FIGURE 10-1. ENGINE ELECTRICAL INSTALLATION 408
FIGURE 10-2. CAB ELECTRICAL INSTALLATION 410
FIGURE 10-3. ELECTRICAL INSTALLATION, CAB SWITCHES 414
FIGURE 10-4. BOOM AND FRAME ELECTRICAL INSTALLATIONS 416
FIGURE 10-5. ELECTRICAL INSTALLATION, BOOM AUXILIARY ELECTRIC (8M, 9M, 12M & 13M) 420
FIGURE 10-6. ELECTRICAL INSTALLATION, BOOM AUXILIARY ELECTRIC (17M) 422
FIGURE 10-7. ELECTRICAL INSTALLATION, LIGHTS 424
FIGURE 10-8. MAIN CAB HARNESS 428
FIGURE 10-9. BOOM HARNESS AUXILIARY ELECTRICAL ADAPTER 434
FIGURE 10-10. BOOM LIGHTS HARNESS 436

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >

FIGURE 2-1. BOOM INSTALLATION (8M & 9M)

ITEM	PART NUMBER	QTY	DESCRIPTION	REV
	1001092817	Ref	BOOM INSTALLATION, (8M), (not available to order, see items 1 thru 4 for service)	E
	1001092810	Ref	BOOM INSTALLATION, (9M), (not available to order, see items 1 thru 4 for service)	D
1		Ref	BOOM HYDRAULICS, (not shown)	
2	1001092818	1	BOOM ASSEMBLY, (8M), (includes items 101 thru 116)	G
2	1001092812	1	BOOM ASSEMBLY, (9M), (includes items 101 thru 116)	G
3		Ref	BOOM AUXILIARY HYDRAULICS, (not shown), (See HYDRAULIC CIRCUITS SECTION for Breakdown)	
4		Ref	BOOM EXTENSION DECAL, (not shown), (See DECALS SECTION for Breakdown)	
101		Ref	SECOND BOOM SECTION ASSY, (See SECOND BOOM SECTION ASSEMBLY for Breakdown)	
102		Ref	FIRST BOOM SECTION ASSY, (See FIRST BOOM SECTION ASSEMBLY for Breakdown)	
103		Ref	QUICK RELEASE ASSY, (See QUICK ATTACH ASSEMBLY, MECHANICAL AND HYDRAULIC QUICK ATTACH for Breakdown)	
104		Ref	TILT CYLINDER ASSY, (See HYDRAULIC COMPONENTS SECTION for Breakdown)	
105		Ref	CROWD CYLINDER ASSY, (See HYDRAULIC COMPONENTS SECTION for Breakdown)	
106	8002640	1	PIN	
107	3760463	2	CIRCLIP	
108	4805590	1	PIN	
109	8006258	4	CIRCLIP	
110	8002320	2	SPACER	
111	8002331	1	PIN	
112	8002641	1	COVER PLATE, (3508PS, 3509PS, 4008PS & 4009PS)	
112	8002641B	1	COVER PLATE, (40.8, 40.9)	
113	0760807	3	HEX HD CAPSCREW, M8-1.25X14mm, (8M)	
113	464022	3	HEX HD CAPSCREW, M8X14, (9M)	
114	8009939	1	S/N PLATE	
115	1001112689	1	HYDRAULIC CLAMP	
116	0761018	2	HEX HD CAPSCREW, M10X50, GR8.8	

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >

FIGURE 4-12. TRANSMISSION ASSEMBLY - CASE AND PLATE

ITEM	PART NUMBER	QTY	DESCRIPTION	REV
		Ref	CASE AND PLATE, (includes items 1 thru 36)	
1	70020402	1	TRANSMISSION CASE	
2	8032509	1	BREATHER	
3	7028058	1	NIPPLE, PIPE	
4	91474198	1	COUPLING, PIPE	
5	91474199	1	FITTING, ELBOW	
6	8032528	2	PLUG, MAGNETIC DRAIN	
7	91474200	2	DOWEL PIN	
8	91474201	1	GASKET PLATE	
9	10837074	1	RING, OIL SUPPLY TUBE SEAL	
10	7029822	1	PLATE	
11	8034963	1	SEAT, SAFETY VALVE	
12	91474205	1	SNAP RING, SEAT	
13	91474206	1	POPPET, CONVERTER SAFETY VALVE	
14	8034962	1	SPRING, CONVERTER SAFETY VALVE	
15	8034961	1	WASHER, POPPET RETAINING	
16	91474189	1	PLUG	
17	8032526	3	PLUG, (incudes item 18)	
18	91474188	3	O-RING	
19	91474208	7	SCREW	
20	91474209	2	SCREW	
21	91474265	9	LOCKWASHER	
22	91474210	1	SUCTION TUBE ASSY	
23	91474211	1	PLUG, FILLER	
24	91474189	1	PLUG	
25	91474192	1	PLUG	
26	90204823	1	DIPSTICK TUBE ASSY	
27	70020403	1	DIPSTICK	
28	91474213	2	PLUG, SPEED SENSOR	
29	91474214	2	O-RING, SPEED SENSOR	
30	8034940	2	SCREW, SPEED SENSOR	
32	91474617	2	CAPSCREW	
33	91474618	2	WASHER	
34	NA	1	BAFFLE, SAFETY VALVE	
35	70020405	1	PLATE	
36	70020406	2	HEX HD CAPSCREW W/ FLANGE	
	0275674	1	SPEED SENSOR INSTALLATION, (includes items 51 & 57), (if equipped)	
51	8007875	1	SPEED SENSOR ASSY, (includes one of items 29 & 30 and items 52 thru 56)	
52	4461118	1	CONNECTOR	
53	1001107854	2	CONTACT	
54	1001104498	1	SEAL	
55		Ref	SENSOR	
56	7028927	1	CLIP	
57	0100011	AR	LOCTITE 242	

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >

FIGURE 8-21. TRAILER BRAKE INSTALLATION (8M & 9M)

ITEM	PART NUMBER	QTY	DESCRIPTION	REV
	1001103224	Ref	TRAILER BRAKE INSTALLATION, (CE - 8M & 9M, if equipped), (not available to order, see items 1 thru 25 for service)	D
1	0700822	2	HEX HD CAPSCREW, M8X70, GR8.8	
3	2140806	1	STRAIGHT FITTING	
4	2142011	1	TEE FITTING	
5	2142203	1	TEE FITTING	
6	2142204	1	TEE FITTING	
7	2143604	1	FITTING	
8	2144803	3	STRAIGHT FITTING, (includes o-ring)	
9	2144806	1	STRAIGHT FITTING	
11	2221193	1	QUICK DISCONNECT CONNECTOR	
12	1001112197	1	TRAILER BRAKE VALVE	
14	1001111825	1	HOSE ASSY	
15	1001103253	1	HOSE ASSY	
16	1001103254	1	HOSE ASSY	
17	1001103255	1	HOSE ASSY	
18	1001103256	1	HOSE ASSY	
20	1001104019	1	ADAPTER	
21	1001104027	1	ADAPTER	
22	1001104083	1	BLEED SCREW	
23	2142205	1	TEE FITTING	
24	2144804	1	STRAIGHT FITTING, MALE 3/4-16 UNF, (includes o-ring)	
25	1001112385	1	SPACER	
101		Ref	MAIN CONTROL VALVE, (See HYDRAULIC COMPONENTS SECTION for Breakdown)	
102		Ref	REAR HYDRAULIC BRACKET, (See FRAME AND ATTACHING PARTS SECTION for Breakdown)	
103		Ref	HYDRAULIC TANK ASSY, (See HYDRAULIC COMPONENTS SECTION for Breakdown)	
104		Ref	BOOM REAR AUXILIARY , (See BOOM REAR AUXILIARY for Breakdown)	
105		Ref	HOSE ASSY, (See SERVICE/PARK BRAKE for Breakdown)	
106		Ref	TUBE ASSY, (See SERVICE/PARK BRAKE for Breakdown)	
107		Ref	HOSE ASSY, (See SUPPLY CIRCUIT for Breakdown)	
108		Ref	CONNECTOR, (See SUPPLY CIRCUIT for Breakdown)	
109		Ref	CONNECTOR, (See FRAME LEVEL AND NON-FRAME LEVEL HYDRAULICS for Breakdown)	
110		Ref	ELBOW, 90, (See FRAME LEVEL AND NON-FRAME LEVEL HYDRAULICS for Breakdown)	
111		Ref	HOSE ASSY, (See FRAME LEVEL AND NON-FRAME LEVEL HYDRAULICS for Breakdown)	

MidWestTech | JLG 3508PS, 3509PS, 3512PS, 3513PS, 40.8, 40.9, 4008PS, 4009PS, 4012... Order the manual at mid-west-tech.com >