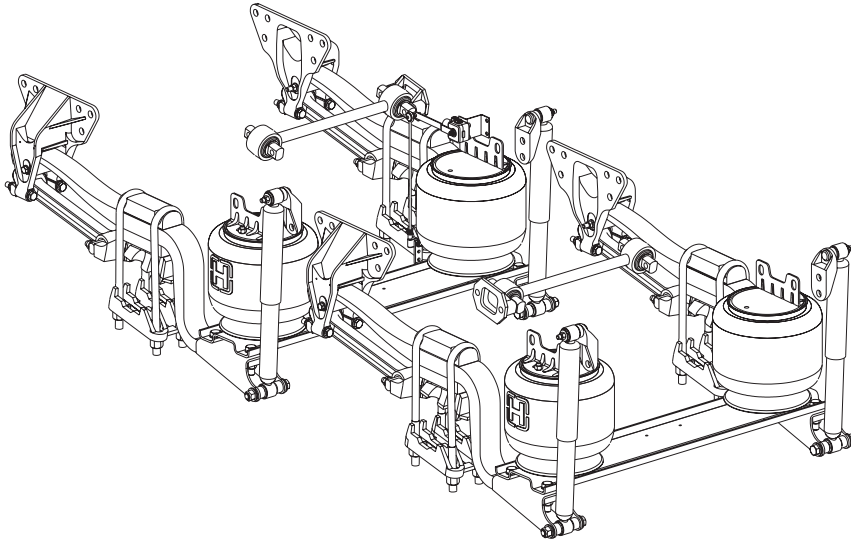


# **PARTS LIST** HAS™ Series

LIT NO: SP-149

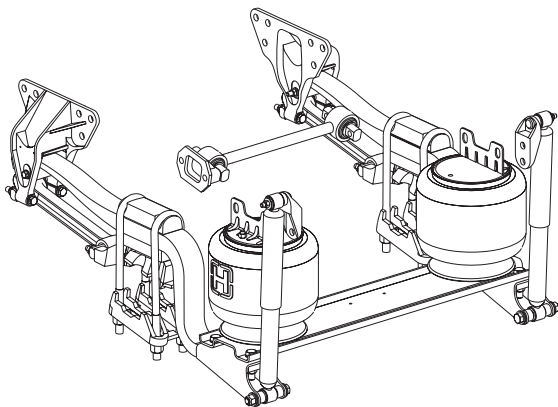
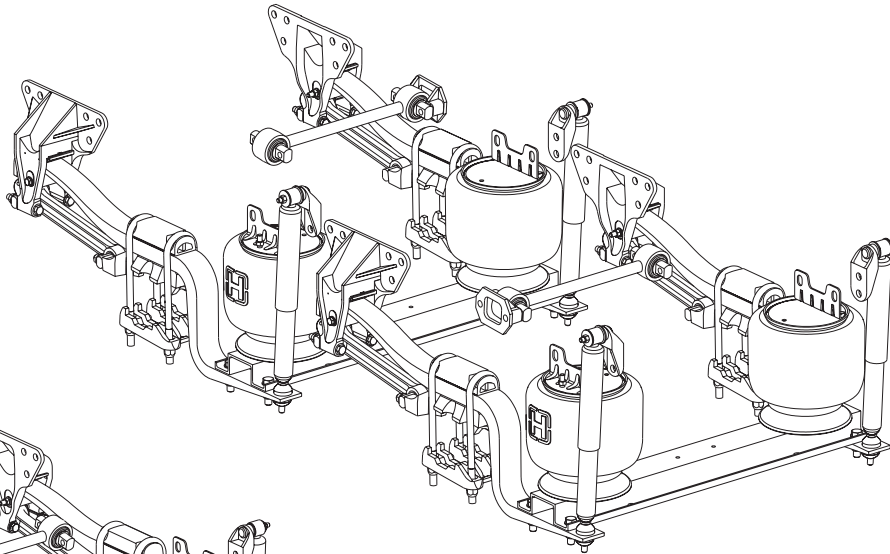
DATE: March 2005

REVISION: E



**HAS 360/400/402/460**

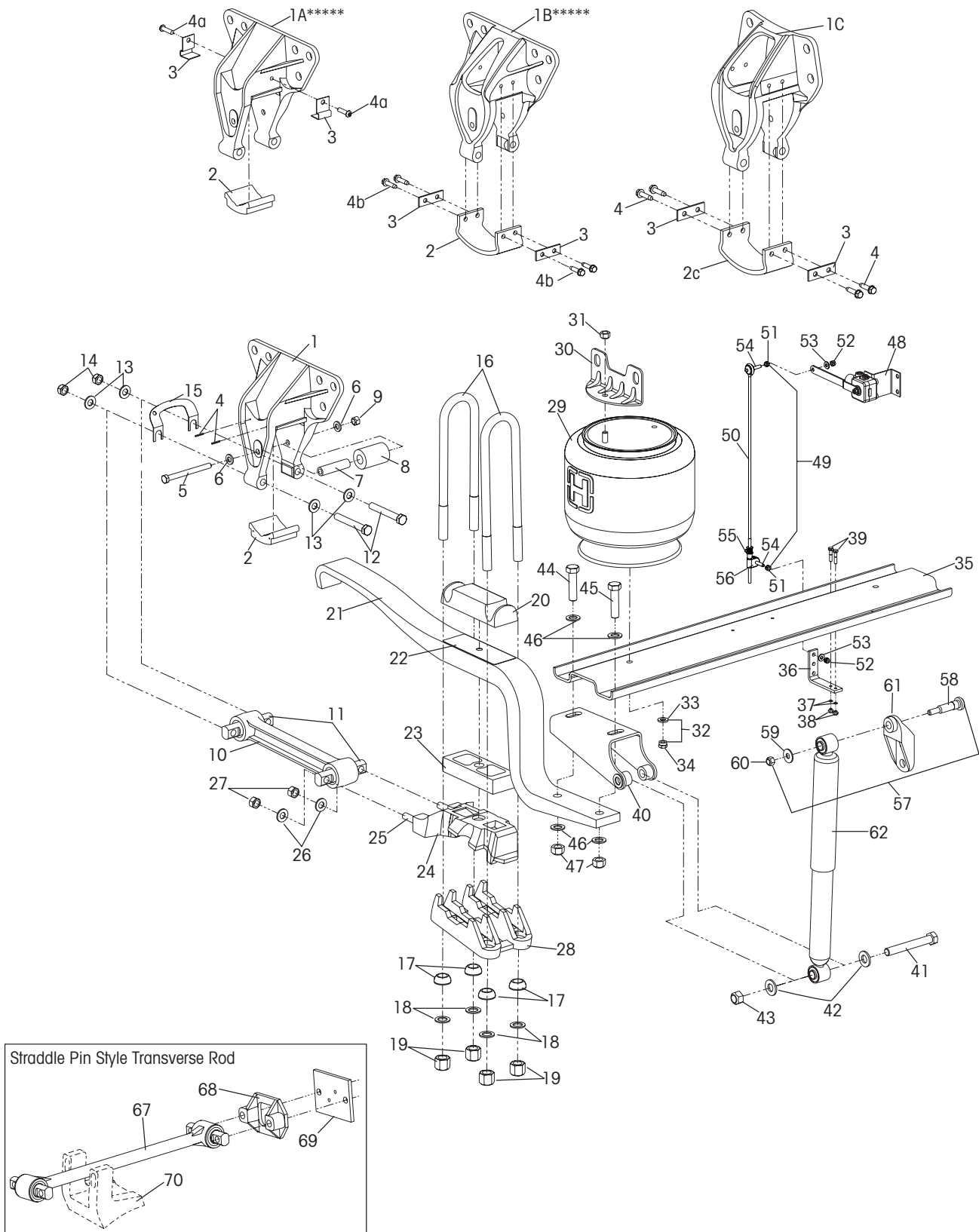
**HAS 40LH**



**HAS 120/150/190/210/230**

*For The Road Ahead™*

 **HENDRICKSON**





KEY NO.	PART NO.	DESCRIPTION	NO. REQ.	KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
1		Front Frame Hanger Assembly (Includes Key Nos. 2-4)	4	21		Main Support Member (Includes Key No. 22)	4
1	58425-001	HAS-400/402/460 Standard Frame Casting No. 57188-000, Replaces 57190-001(1A) and 50752-001(1B)			56940-000	HAS-360	
1	58688-001	HAS-400/402/460 Rein. Frame, Casting No. 57476-000, Replaces 57478-001(1A)			56931-000	HAS-400L	
1C	50753-001	HAS-360, Casting No. 49848-000 or 56666-000			56943-000	HAS-400	
	59045-003	HAS-400/402/460, Standard Frame, Casting No. 59043-000			56934-000	HAS-402L, 460L	
		<b>Slipper Pad Kit</b>	4		56946-000	HAS-402, 460	
		(Includes Key Nos. 2-4)			59597-000	HAS-460 (For service only)	
	56557-002	For Hangers 50753-001		22	47905-000	Liner	4
	56557-004	For Hangers 57190-001		23		Spring Seat Spacer	4
	56557-005	For Hangers 58425-001, 58688-001, 59045-003			48902-000	1"	
2	56929-000	Slipper Pad For Hangers 58425-001, 58688-001, 59045-003	4		48903-000	1 1/2"	
2c	50612-000	For Hangers 50753-001		24		Spring Seat Assembly (Includes Key Nos. 25-27) See Spring Seat Assembly Chart (Pg. 5)	
3	50597-000	Retainer For Hangers 50753-001 (1c)	8			Left Front	1
		Retainer Lock Pin or Screw	8			Right Front	1
4	58287-001	1" Lock Pin				Left Rear	1
4a	57540-000	3/8" Button Head Screw				Right Rear	1
4b	57306-000	3/8" Rolok Screw		25	50918-000	5/8"-11 UNC Stud	8
	49175-013	<b>Rebound Roller Kit</b> (Includes Key Nos. 5-9)	1	26	22962-004	5/8" Flat Hardened Washer	8
5	24531-015	1/2"-13 UNC Rebound Bolt	4	27	47764-000	5/8"-11 UNC Locknut	8
6	22962-014	1/2" Flat Hardened Washer	8	28		Axle Bottom Cap (Meritor RT40/41/44-145, RT46/50; RT40-160; RT46-158, Dana 404/405/454; DSP40/41; DSH40/44, DSS40/462/463, D40/46-170)	4
7	57988-000	Rebound Bolt Spacer, Replaces 47458-000	4		50216-000	LHF/RHF/LHR/RHR 0-9.5° Pinion Angle HAS-400/402/460	
8	57989-000	Rebound Roller, Replaces 48883-000	4		50222-000	LHR/RHR 10-14° Pinion Angle HAS-400/402/460	
	59598-000	HAS 460 (For service only)		28		Axle Bottom Cap (Meritor SSHD, RT46-157)	4
9	49846-000	1/2"-13 UNC Locknut	4		50216-000	LHF 0-9.5° Pinion Angle	
10		Torque Rod Assembly Shim Type Adjustable 14 3/8" (Includes Key No. 11)	4		50217-001	RHF 0-9.5° Pinion Angle	
	48411-006	HAS-360/400/402			50221-001	LHR 10-14° Pinion Angle	
	62007-365	HAS-460, Replaces 50376-001 Rod and 57256-000 Bushing			50222-000	RHR 10-14° Pinion Angle HAS400/402/460	
11	47691-000L	Torque Rod Bushing	8	28		Axle Bottom Cap (Dana D461)	4
	49176-001	<b>Torque Rod Fastener Kit</b> (Includes Key Nos. 12-14)	1		50085-000	LHF 0-9.5° Pinion Angle	
12	32043-005	5/8"-11 UNC 4 1/2" Bolt	8		50086-000	RHF 0-9.5° Pinion Angle	
13	22962-004	5/8" Flat Hardened Washer	16		50095-000	LHR 10-14° Pinion Angle	
14	47764-000	5/8"-11 UNC Locknut	8		50094-000	RHR 10-14° Pinion Angle HAS-402/460	
15		Torque Rod Shim	As Req.	29		Air Spring (Includes Key Nos. 30-31)	4
	49689-000	1/16"			56917-002L	HAS-400L/402L	
	57856-000	1/32"			57122-002L	HAS-400/402/460	
	48718-050	<b>U Bolt Fastener Kit</b> (Includes Key Nos. 16-19)	1	30	50804-002	Air Spring Frame Bracket	4
16	47417-	7/8"-14 UNF U Bolt (Specify Length)	8	31	17700-010	1/2"-13 UNC Air Spring Locknut	4
17	48574-000	7/8" Spherical Washer	16	32	49177-005	<b>Air Spring Fastener Kit</b> (Includes Key Nos. 33-34)	1
18	22962-002	7/8" Flat Hardened Washer	16	33	22962-014	1/2" Flat Hardened Washer	4
19		U Bolt Nut	16	34	17700-010	1/2"-13 UNC Nylocknut	4
	50765-000	7/8"-14 UNF Locknut		35		Cross Channel (Specify Axle Dowel Pin Center)	2
	57347-000	7/8"-14 UNF Nylocknut			57317-	HAS-360/400/402/460	
20	56805-000	Top Pad	4		57773-	HAS-400/402/460 w/ Rear Inboard Shock	



KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
	57430-000	<b>Control Valve Linkage Bracket Kit</b> (Includes Key Nos. 36-39)	1
36	56789-000	Control Valve Linkage Bracket	1
37	22962-028	¼" Flat Hardened Washer	4
38	49983-000	¼"-20 UNC Locknut	2
39	56935-002	¼"-20 UNC 1" Bolt	2
	57356-000	Lower Shock Bracket Assembly (Includes Key Nos. 40-43)	4
	49690-002	HAS-400L/402L	
40	57356-000	Lower Shock Bracket	4
	49324-002	HAS-400L/402L	
41	50764-002	¾"-10 UNC 5½" Bolt	4
42	22962-001	¾" Flat Hardened Washer	8
43	49842-000	¾"-10 UNC Locknut	4
		<b>Cross Channel Fastener Kit</b> (Includes Key Nos. 44-47)	1
	50763-001	HAS-360/400	
	50763-003	HAS-402/460	
44		¾"-10 UNC Bolt	4
	50764-005	HAS-360/400-3"	
	50764-003	HAS-402/460-3½"	
45		¾"-10 UNC Bolt	4
	50764-007	HAS-360/400-2½"	
	50764-005	HAS-402/460-3"	
46	22962-001	¾" Flat Hardened Washer	16
47	49842-000	¾"-10 UNC Locknut	8
48	57977-000	Height Control Valve	1
49	58994- L	HCV Linkage Assembly (Specify Length) (Includes Key Nos. 50-56)	1
		*Linkage Rod (Specify Length)	1
51		*5/16"-18 UNC Jam Nut	2
52		*5/16"-18 UNC Locknut	2
53		*5/16" Flat Hardened Washer	2
54		*5/16"-18 UNC Stud	2
55		*Linkage Rod Clamp	1
56		*Adjustable Linkage Rod Joint	1

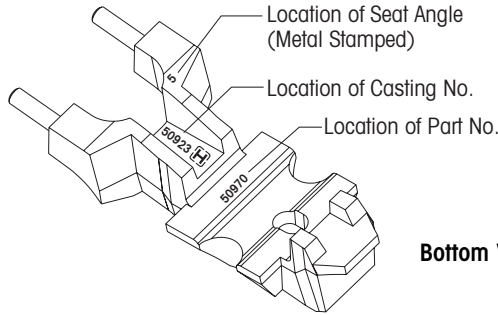
KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
57	57322-001	Upper Shock Bracket Assembly (Includes Key Nos. 58-61)	4
58	50368-000	½"-13 UNC Serrated Shank Bolt	4
59	22962-031	½" Flat Hardened Washer	4
60	49846-000	½"-13 UNC Locknut	4
61		*Upper Shock Bracket	1
62		Shock Absorber	4
	60670-005L	HAS-360/400/402/460 Standard	
	60670-007L	HAS-400/402/460 Standard Inboard Rear	
	60675-003L	High Torque	
	60675-006L	HAS-400/402/460 High Torque Inboard Rear	
	60670-008L	HAS-400L/402L/460L	
63	48914-000	****Air Dump Switch (Located In Cab)	1
64	49193-001	****Synchro-Relay Valve	1
65	48940-000	****Air Switch Name Plate (Located In Cab)	1
66	30272-000	****Pressure Protection Valve	1
67	60218-000	**Transverse Rod Assembly	2
68	22186-000	Transverse Rod Frame Bracket	2
69	45045-003	Back up Plate	2
70		***Transverse Rod Axle Bracket See 59310-004 for proper axle bracket and Assembly Instructions	2

**NOTE:**

- \* Item included in assembly only, part not sold separately.
- \*\* Transverse Rods (Key No. 67) are mandatory with the HAS Series Suspension regardless of axle spacing and require rubber center beam bushings. See SEU-0213 for mandatory use of transverse rods or bronze center bushings
- \*\*\* Brackets for drive axles are supplied by the axle manufacturer.
- \*\*\*\* See Plumbing Diagram on pg. 12.
- \*\*\*\*\* These frame hangers are obsolete, although replacement slipper pads and hardware are currently still available.



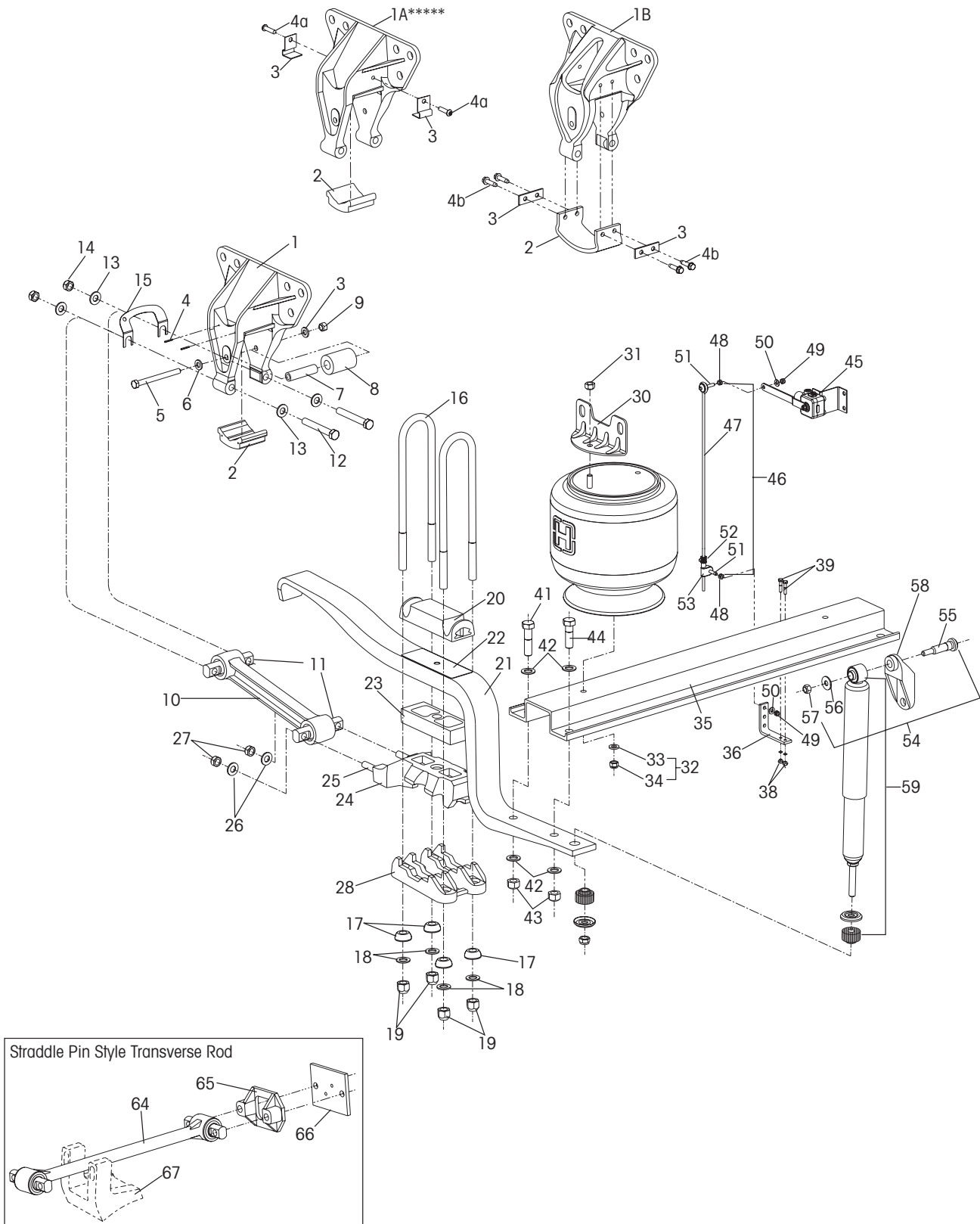
**TANDEM SPRING SEAT ASSEMBLY — HAS 360/400/402/460/40LH**



**Bottom View of Spring Seat**

Includes Key Nos. 25, 26, 27  
 Total of 4 Spring Seats Required  
 per Tandem Suspension  
 One of each Left Front, Right Front,  
 Left Rear and Right Rear required.

LEFT FRONT			RIGHT FRONT						
<b>KEY NO. 24</b>	<b>Dana</b> D341/402/403 404/405/454 DSP40/41 DSH40/44 DSS40/462/463 D40/46-170	<b>Dana</b> D461	<b>KEY NO. 24</b>	<b>Dana</b> 404/405/454 DSP40/41 DSH40/44 DSS40/462/463 D40/46-170	<b>Dana</b> D341/402/403		<b>Dana</b> D461		
	<b>Meritor</b> SL100/SQ100, SQHD RT40/41/44-145 RT46/50-160 RT40-160 RT46-157/158,SSHD			<b>Meritor</b> RS21-145/160 RS23-160/161 RT40/41/44-145 RT46/50-160 RT40-160, RT46-158	<b>Meritor</b> SL100/SQ100,SQHF	<b>Meritor</b> RT46-157, SSHD			
	<b>CASTING NO.</b>	50923-000		50986-000	<b>CASTING NO.</b>	50923-000	50974-000	50974-000	50992-000
	<b>SEAT ANGLE</b>	<b>H PART NO.</b>		<b>H PART NO.</b>	<b>SEAT ANGLE</b>	<b>H PART NO.</b>	<b>H PART NO.</b>	<b>H PART NO.</b>	<b>H PART NO.</b>
	2.0°	50970-001		50988-001	2.0°	50970-001	50976-001	50976-012	50994-001
	2.5°	50970-002		50988-002	2.5°	50970-002	50976-002	50976-016	50994-002
	3.0°	50970-003		50988-003	3.0°	50970-003	50976-003	50976-013	50994-003
	3.5°	50970-004		50988-004	3.5°	50970-004	50976-004	50976-017	50994-004
	4.0°	50970-005		50988-005	4.0°	50970-005	50976-005	50976-014	50994-005
	4.5°	50970-006		50988-006	4.5°	50970-006	50976-006	50976-018	50994-006
5.0°	50970-007	50988-007	5.0°	50970-007	50976-007		50994-007		
5.5°	50970-008	50988-008	5.5°	50970-008	50976-008		50994-008		
6.0°	50970-009	50988-009	6.0°	50970-009	50976-009		50994-009		
6.5°	50970-010	50988-010	6.5°	50970-010	50976-010		50994-010		
LEFT REAR			RIGHT REAR						
<b>KEY NO. 24</b>	<b>Dana</b> 404/405/454 DSP40/41 DSH40/44 DSS40/462/463 D40/46-170	<b>Dana</b> D341/402/403	<b>KEY NO. 24</b>	<b>Dana</b> D461		<b>Dana</b> D341/402/403 404/405/454 DSP40/41 DSH40/44 DSS40/462/463 D40/46-170	<b>Dana</b> D461		
	<b>Meritor</b> RT40/41/44-145 RT46/50-160 RT40-160 RT46-158	<b>Meritor</b> SL100/SQ100, SQHP		<b>Meritor</b> RT46-157, SSHD		<b>Meritor</b> SL100/SQ100,SQHD RT40/41/44-145 RT46/50-160 RT40-160 RT46-157/158,SSHD			
	<b>CASTING NO.</b>	50971-000		50977-000	50977-000	50995-000	<b>CASTING NO.</b>	50971-000	50992-000
	<b>SEAT ANGLE</b>	<b>H PART NO.</b>		<b>H PART NO.</b>	<b>H PART NO.</b>	<b>H PART NO.</b>	<b>SEAT ANGLE</b>	<b>H PART NO.</b>	<b>H PART NO.</b>
	5.0°	50973-011		50979-011	50979-013	50997-011	5.0°	50973-011	50991-011
	6.5°	50973-012		50979-012		50997-012	6.5°	50973-012	50991-012
	7.5°	50973-013		50979-014			7.5°	50973-013	
	8.0°	50973-001		50979-001		50997-001	8.0°	50973-001	50991-001
	8.5°	50973-002		50979-002		50997-002	8.5°	50973-002	50991-002
	9.0°	50973-003		50979-003		50997-003	9.0°	50973-003	50991-003
9.5°	50973-004	50979-004		50997-004	9.5°	50973-004	50991-004		
10.0°	50973-005	50979-005		50997-005	10.0°	50973-005	50991-005		
10.5°	50973-006	50979-006	50979-020	50997-006	10.5°	50973-006	50991-006		
11.0°	50973-007	50979-007		50997-007	11.0°	50973-007	50991-007		
11.5°	50973-008	50979-008	50979-019	50997-008	11.5°	50973-008	50991-008		
12.0°	50973-009	50979-009		50997-009	12.0°	50973-009	50991-009		
12.5°	50973-010	50979-010	50979-015	50997-010	12.5°	50973-010	50991-010		
13.0°	50973-015	50979-017		50997-013	13.0°	50973-015	50991-013		
13.5°	50973-014	50979-018	50979-016		13.5°	50973-014			
14.0°	50973-016				14.0°	50973-016			







KEY NO.	PART NO.	DESCRIPTION	NO. REQ.	KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
1		Front Frame Hanger Assembly (Includes Key Nos. 2-4)	4	28		Axle Bottom Cap (Dana D402/403/451)	4
1	58425-001	Standard Frame Casting No. 57188-000, Replaces 57190-001(1A) and 50752-001(1B)			57198-000	LHF 0-9.5° Pinion Angle	
1	58688-001	Rein. Frame, Casting No. 57476-000, Replaces 57478-001(1A)			57197-000	RHF 0-9.5° Pinion Angle	
		<b>Slipper Pad Kit</b>	4		57200-000	LHR 10-14° Pinion Angle	
		(Includes Key Nos. 2-4)			57199-000	RHR 10-14° Pinion Angle	
	56557-002	For Hangers 50753-001		29	50898-002L	Air Spring (Includes Key Nos. 30-31)	4
	56557-004	For Hangers 57190-001		30	50804-002	Air Spring Frame Bracket	4
	56557-005	For Hangers 58425-001, 58688-001		31	17700-010	½"-13 UNC Air Spring Locknut	4
2		Slipper Pad	4	32	49177-005	<b>Air Spring Fastener Kit</b> (Includes Key Nos. 33-34)	1
	56929-000	For Hangers 58425-001, 58688-001		33	22962-014	½" Flat Hardened Washer	4
3		Retainer	8	34	17700-010	½"-13 UNC Nylocknut	4
		Retainer Lock Pin or Screw	8	35	57192-	Cross Channel (Specify Axle Dowel Pin Center)	2
4	58287-001	1" Lock Pin			57430-000	<b>Control Valve Linkage Bracket Kit</b> (Includes Key Nos. 36-39)	1
4a	57540-000	⅜" Button Head Screw		36	56789-000	Control Valve Linkage Bracket	1
4b	57306-000	⅜" Rolok Screw		37	22962-028	¼" Flat Hardened Washer	4
	49175-013	<b>Rebound Roller Kit</b> (Includes Key Nos. 5-9)	1	38	49983-000	¼"-20 UNC Locknut	2
5	24531-015	½"-13 UNC Rebound Bolt	4	39	56935-002	¼"-20 UNC 1" Bolt	2
6	22962-014	½" Flat Hardened Washer	8		50763-001	<b>Cross Channel Fastener Kit</b> (Includes Key Nos. 41-44)	1
7	57988-000	Rebound Bolt Spacer, Replaces 47458-000	4	41	50764-002	¾"-10 UNC 5½" Bolt	4
8	57989-000	Rebound Roller, Replaces 48883-000	4	42	22962-001	¾" Flat Hardened Washer	8
9	49846-000	½"-13 UNC Locknut	4	43	49842-000	¾"-10 UNC Locknut	4
10	48411-006	Torque Rod Assembly Shim Type Adjustable 14⅜" (Includes Key No. 11)	4	44	50764-005	¾"-10 UNC 3" Bolt	4
11	47691-000L	Torque Rod Bushing	8	45	57977-000	Height Control Valve	1
	49176-001	<b>Torque Rod Fastener Kit</b> (Includes Key Nos. 12-14)	1	46	58994- L	HCV Linkage Assembly (Specify Length) (Includes Key Nos. 47-53)	1
12	32043-005	⅝"-11 UNC 4½" Bolt	8	47		*Linkage Rod (Specify Length)	1
13	22962-004	⅝" Flat Hardened Washer	16	48		*⅝"-18 UNC Jam Nut	2
14	47764-000	⅝"-11 UNC Locknut	8	49		*⅝"-18 UNC Locknut	2
15		Torque Rod Shim	As Req.	50		*⅝"-18 UNC Flat Hardened Washer	2
	49689-000	⅜"		51		*⅝"-18 UNC Stud	2
	57856-000	⅜"		52		*Linkage Rod Clamp	1
	48718-	<b>U Bolt Fastener Kit</b> (Includes Key Nos. 16-19)	1	53		*Adjustable Linkage Rod Joint	1
16	49684-	¾"-16 UNF U Bolt (Specify Length)	8	54	57322-001	Upper Shock Bracket Assembly (Includes Key Nos. 55-58)	4
17	49947-000	¾" Spherical Washer	16	55	50368-000	½"-13 UNC Serrated Shank Bolt	4
18	22962-001	¾" Flat Hardened Washer	16	56	22962-031	½" Flat Hardened Washer	4
19	49685-000	¾"-16 UNF Locknut	16	57	49846-000	½"-13 UNC Locknut	4
20	57195-000	Top Pad	4	58		*Upper Shock Bracket	1
21		Main Support Member (Includes Key No. 22)	4	59		Shock Absorber	4
	57217-000	Includes Cross Channel Liner			60680-001L	Standard	
	60262-000	For Mack only			60685-001L	High Torque	
22	47905-000	Liner	4	60	48914-000	****Air Dump Switch (Located In Cab)	1
23		Spring Seat Spacer	4	61	49193-001	****Synchro-Relay Valve	1
	48902-000	1"		62	48940-000	****Air Switch Name Plate (Located In Cab)	1
	48903-000	1½"		63	30272-000	****Pressure Protection Valve	1
24		Spring Seat Assembly (Includes Key Nos. 25-27) See Spring Seat Assembly Chart (Pg. 5)		64	60218-000	**Transverse Rod Assembly	2
		Left Front	1	65	22186-000	Transverse Rod Frame Bracket	2
		Right Front	1	66	45045-003	Back up Plate	2
		Left Rear	1	67		***Transverse Rod Axle Bracket See 59310-004 for proper axle bracket and Assembly Instructions	2
		Right Rear	1				
25	50918-000	⅝"-11 UNC Stud	8				
26	22962-004	⅝" Flat Hardened Washer	8				
27	47764-000	⅝"-11 UNC Locknut	8				
28		Axle Bottom Cap (Meritor RT40/41/44-145, RT46/50; RT40-160; RT46-158; Dana 404/405/454; DSP40/41, DSH40/44, DSS40/462/463, D40/46-170)	4				
	57198-000	LHF/RHF/LHR/RHR 0-9.5° Pinion Angle					
	57200-000	LHR/RHR 10-14° Pinion Angle					

**NOTE:**

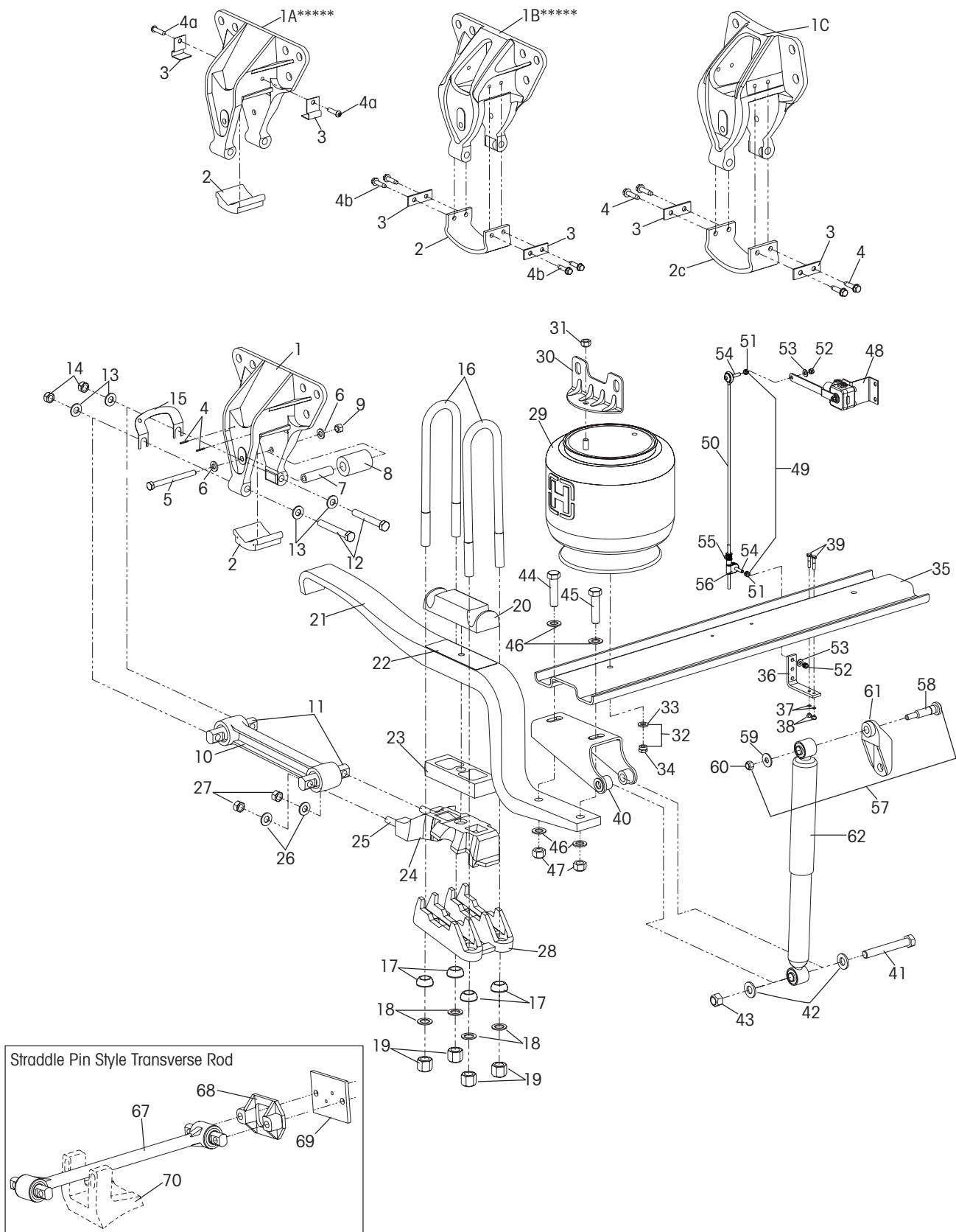
\* Item included in assembly only, part not sold separately.

\*\* Transverse Rods (Key No. 64) are mandatory with the HAS Series Suspension regardless of axle spacing and require rubber center beam bushings. See SEU-0213 for mandatory use of transverse rods or bronze center bushings

\*\*\* Brackets for drive axles are supplied by the axle manufacturer.

\*\*\*\* See Plumbing Diagram on pg. 12.

\*\*\*\*\* These frame hangers are obsolete, although replacement slipper pads and hardware are currently still available.







KEY NO.	PART NO.	DESCRIPTION	NO. REQ.	KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
1		Front Frame Hanger Assembly (Includes Key Nos. 2-4)	2	18		Flat Hardened Washer	8
1	58425-001	HAS-210/230, Standard Frame Casting No. 57188-000, Replaces 57190-001(1A) and 50752-001(1B)			22962-001	3/4" HAS-120/150	
1	58688-001	HAS-210/230, Rein. Frame, Casting No. 57476-000, Replaces 57478-001(1A)			22962-002	7/8"	
1C	50753-001	HAS-120/150/190, Casting No. 49848-000 or 56666-000		19		U Bolt Nut	8
	60636-001	HAS-120/150/190 Casting No. 60634-001			49685-000	3/4"-16 UNF Locknut HAS-120/150	
	59045-003	Standard Frame, Casting No. 59043-000			50765-000	7/8"-14 UNF Locknut	
	59052-000	Rein. Frame, Casting No. 59050-000			57347-000	7/8"-14 UNF Nylocknut	
		<b>Slipper Pad Kit</b>	2	20		Top Pad	2
	56557-002	(Includes Key Nos. 2-4) For Hangers 50753-001			57224-000	HAS-120/150	
	56557-004	For Hangers 57190-001			56805-000	HAS-190/210/230	
	56557-005	For Hangers 58425-001, 58688-001, 59045-003, 59052-000		21		Main Support Member (Includes Key No. 22)	2
2	56929-000	Slipper Pad For Hangers 58425-001, 58688-001, 59045-003, 59052-000	2		56925-000	HAS-120L/150L	
2c	50612-000	For Hangers 50753-001			56937-000	HAS-120/150	
3	50597-000	Retainer For Hangers 50753-001 (1C)	4		56928-000	HAS-190L	
		Retainer Lock Pin or Screw	4		56940-000	HAS-190	
4	58287-001	1" Lock Pin			56931-000	HAS-210L	
4a	57540-000	3/8" Button Head Screw			56943-000	HAS-210	
4b	57306-000	3/8" Rolok Screw			56934-000	HAS-230L	
	49175-014	<b>Rebound Roller Kit</b> (Includes Key Nos. 5-9)	1		56946-000	HAS-230	
5	24531-015	1/2"-13 UNC Rebound Bolt	2	22	47905-000	Liner	2
6	22962-014	1/2" Flat Hardened Washer	4	23		Spring Seat Spacer	2
7	57988-000	Rebound Bolt Spacer, Replaces 47458-000	2		48531-009	1", HAS-120/150 - 6 1/4" width	
8	57989-000	Rebound Roller, Replaces 48883-000	2		48902-000	1"	
9	49846-000	1/2"-13 UNC Locknut	2		48903-000	1 1/2"	
10		Torque Rod Assembly Shim Type Adjustable 14 3/8" (Includes Key No. 11)	2	24		Spring Seat Assembly (Includes Key Nos. 25-27) See Spring Seat Assembly Chart (Pg. 11)	
	48411-006	HAS-120/150/190	2			Left Front	1
	62007-365	HAS-230, Replaces 50376-001 Rod and 57256-000 Bushing	2			Right Front	1
11	47691-000L	Torque Rod Bushing	4	25	50918-000	5/8"-11 UNC Stud	4
	49176-003	<b>Torque Rod Fastener Kit</b> (Includes Key Nos. 12-14)	1	26	22962-004	5/8" Flat Hardened Washer	4
12	32043-005	5/8"-11 UNC 4 1/2" Bolt	4	27	47764-000	5/8"-11 UNC Locknut	4
13	22962-004	5/8" Flat Hardened Washer	8	28		Axle Bottom Cap	2
14	47764-000	5/8"-11 UNC Locknut	4		57024-000	(Meritor RS13-120, RS15-120, RS15-210) LHF/RHF 0-5° Pinion Angle (Meritor RS21-145, RS21-160, RS23-160/161) (Dana 19060/21060/21080/ 21090/23090/26090, S21/23/26-170/190)	
15		Torque Rod Shim	As Req.		50216-000	LHF/RHF 0-9.5° Pinion Angle HAS-190/210/230	
	49689-000	1/16"		28		Axle Bottom Cap	2
	57856-000	1/32"			50085-000	(Dana 23080/23105/26015) LHF 0-9.5° Pinion Angle	
	48718-	<b>U Bolt Fastener Kit</b> (Includes Key Nos. 16-19)	1		50086-000	RHF 0-9.5° Pinion Angle	
16		U Bolt (Specify Length)	4		50095-000	LHR 10-14° Pinion Angle	
	49684-	3/4"-16 UNF HAS-120/150			50094-000	RHR 10-14° Pinion Angle HAS-230	
	47417-	7/8"-14 UNF		29		Air Spring	2
17		Spherical Washer	8		57920-002L	(Includes Key Nos. 30-31) HAS-120L	
	49947-000	3/4" HAS-120/150			56917-002L	HAS-150L/190L/210L/230L	
	48574-000	7/8"			57122-002L	HAS-190/210/230	
				30	50804-002	Air Spring Frame Bracket	2
				31	17700-010	1/2"-13 UNC Air Spring Locknut	2
				32	49177-006	<b>Air Spring Fastener Kit</b> (Includes Key Nos. 33-34)	1
				33	22962-014	1/2" Flat Hardened Washer	2
				34	17700-010	1/2"-13 UNC Nylocknut	2
				35		Cross Channel	1
						(Specify Axle Dowel Pin Center)	
					57855-	HAS-120	
					57317-	HAS-150/190/210/230	



KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
	57430-000	<b>Control Valve Linkage Bracket Kit</b> (Includes Key Nos. 36-39)	1
36	56789-000	Control Valve Linkage Bracket	1
37	22962-028	¼" Flat Hardened Washer	4
38	49983-000	¼"-20 UNC Locknut	2
39	56935-002	¼"-20 UNC 1" Bolt	2
		Lower Shock Bracket Assembly (Includes Key Nos. 40-43)	2
	49690-002	HAS-120L/150L190L/210L/230L	
	57356-000	HAS-190/210/230	
40		Lower Shock Bracket	2
	49324-002	HAS-120L/150L190L/210L/230L	
	57355-000	HAS-190/210/230	
41	50764-002	¾"-10 UNC 5½" Bolt	2
42	22962-001	¾" Flat Hardened Washer	4
43	49842-000	¾"-10 UNC Locknut	2
		<b>Cross Channel Fastener Kit</b> (Includes Key Nos. 44-47)	1
	50763-002	HAS-120/150/190/210	
	50763-004	HAS-230	
44		¾"-10 UNC Bolt	2
	50764-005	HAS-120/150/190/210-3"	
	50764-003	HAS-230-3½"	
45		¾"-10 UNC Bolt	2
	50764-007	HAS-120/150/190/210-2½"	
	50764-005	HAS-230-3"	
46	22962-001	¾" Flat Hardened Washer	8
47	49842-000	¾"-10 UNC Locknut	4
48	57977-000	Height Control Valve	1
49	58994- L	HCV Linkage Assembly (Specify Length) (Includes Key Nos. 50-56)	1
50		*Linkage Rod (Specify Length)	1
51		*5/16"-18 UNC Jam Nut	2
52		*5/16"-18 UNC Locknut	2
53		*5/16" Flat Hardened Washer	2
54		*5/16"-18 UNC Stud	2
55		*Linkage Rod Clamp	1
56		*Adjustable Linkage Rod Joint	1

KEY NO.	PART NO.	DESCRIPTION	NO. REQ.
57	57322-001	Upper Shock Bracket Assembly (Includes Key Nos. 58-61)	2
58	50368-000	½"-13 UNC Serrated Shank Bolt	2
59	22962-031	½" Flat Hardened Washer	2
60	49846-000	½"-13 UNC Locknut	2
61		*Upper Shock Bracket	1
62		Shock Absorber	2
	60670-005L	HAS-190/210/230 Standard	
	60675-003L	HAS-190/210/230 High Torque	
	60670-010L	HAS-120L	
	60670-003L	HAS-150L	
	60670-008L	HAS-190L/210L/230L	
63	48914-000	****Air Dump Switch (Located In Cab)	1
64	49193-001	****Synchro-Relay Valve	1
65	48940-000	****Air Switch Name Plate (Located In Cab)	1
66	30272-000	****Pressure Protection Valve	1
67	60218-000	**Transverse Rod Assembly	1
68	22186-000	Transverse Rod Frame Bracket	1
69	45045-003	Back up Plate	1
70		***Transverse Rod Axle Bracket See 59310-004 for proper axle bracket and Assembly Instructions	1

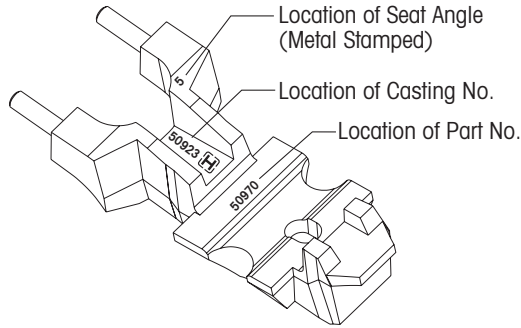
**NOTE:**

- \* Item included in assembly only, part not sold separately.
- \*\* Transverse Rods (Key No. 67) are mandatory with the HAS Series Suspension regardless of axle spacing and require rubber center beam bushings. See SEU-0213 for mandatory use of transverse rods or bronze center bushings
- \*\*\* Brackets for drive axles are supplied by the axle manufacturer.
- \*\*\*\* See Plumbing Diagram on pg. 12.
- \*\*\*\*\* These frame hangers are obsolete, although replacement slipper pads and hardware are currently still available.



**SINGLE SPRING SEAT ASSEMBLY — HAS 120/150/190/210/230**

**Bottom View of Spring Seat**

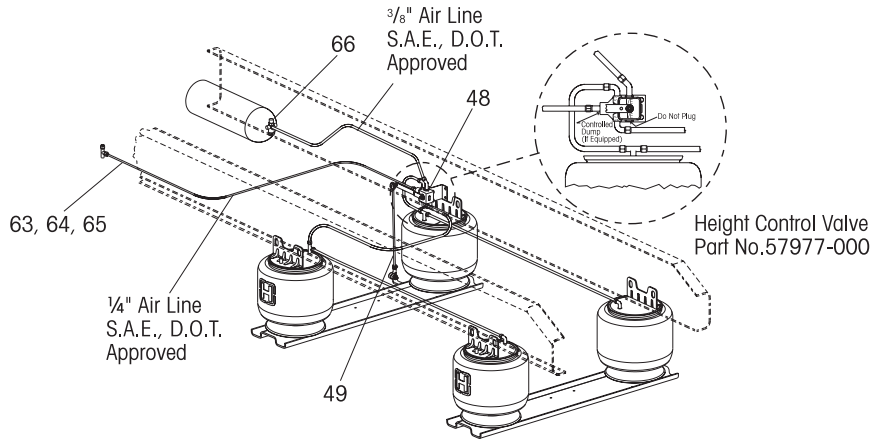


Includes Key Nos. 25, 26, 27  
 Total of 2 Spring Seats Required  
 per Single Suspension  
 One of each Left Front  
 and Right Front required.

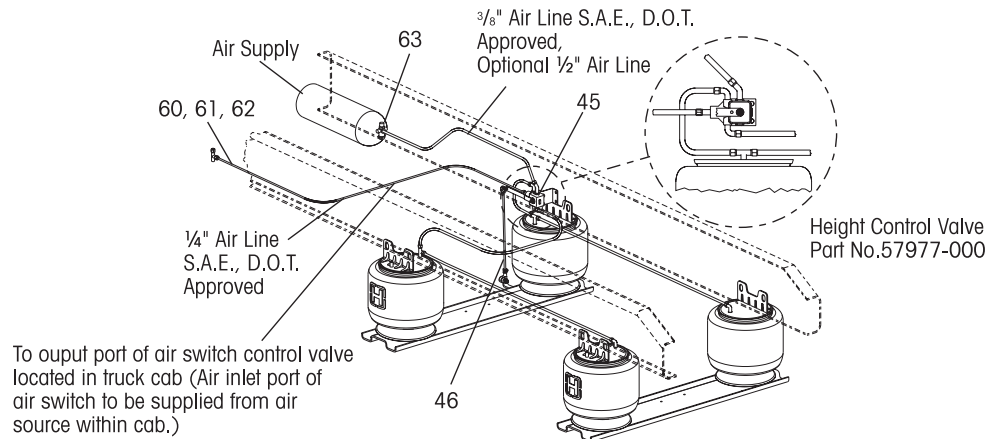
LEFT FRONT				
<b>KEY NO. 24</b>	<b>Dana</b> 19060/21060/21080/ 21090/23090/26090 S21/23/26-170/190	<b>Dana</b> 23080/23105/26015		
	<b>Meritor</b> RS21-145/160 RS23-160/161		<b>Meritor</b> RS13-120, RS15-120, RS15-210	<b>Meritor</b> RS13-120, RS15-120, RS15-210
<b>CASTING NO.</b>	<b>50923-000</b>	<b>50986-000</b>	<b>57021-000</b>	<b>59793-000</b>
<b>SEAT ANGLE</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>
2.0°	50970-001	50988-001	57033-001	
2.5°	50970-002	50988-002	57033-002	
3.0°	50970-003	50988-003	57033-003	59795-001
3.5°	50970-004	50988-004	57033-004	
4.0°	50970-005	50988-005	57033-005	59795-002
4.5°	50970-006	50988-006	57033-006	
5.0°	50970-007	50988-007	57033-007	
5.5°	50970-008	50988-008		
6.0°	50970-009	50988-009		
6.5°	50970-010	50988-010		

RIGHT FRONT				
<b>KEY NO. 24</b>	<b>Dana</b> 19060/21060/21080/ 21090/23090/26090 S21/23/26-170/190	<b>Dana</b> 23080/23105/26015		
	<b>Meritor</b> RS21-145/160 RS23-160/161		<b>Meritor</b> RS13-120, RS15-120, RS15-210	<b>Meritor</b> RS13-120, RS15-120, RS15-210
<b>CASTING NO.</b>	<b>50923-000</b>	<b>50986-000</b>	<b>57021-000</b>	<b>59793-000</b>
<b>SEAT ANGLE</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>	<b>Ⓜ PART NO.</b>
2.0°	50970-001	50988-001	57033-001	
2.5°	50970-002	50988-002	57033-002	
3.0°	50970-003	50988-003	57033-003	59795-001
3.5°	50970-004	50988-004	57033-004	
4.0°	50970-005	50988-005	57033-005	59795-002
4.5°	50970-006	50988-006	57033-006	
5.0°	50970-007	50988-007	57033-007	
5.5°	50970-008	50988-008		
6.0°	50970-009	50988-009		
6.5°	50970-010	50988-010		

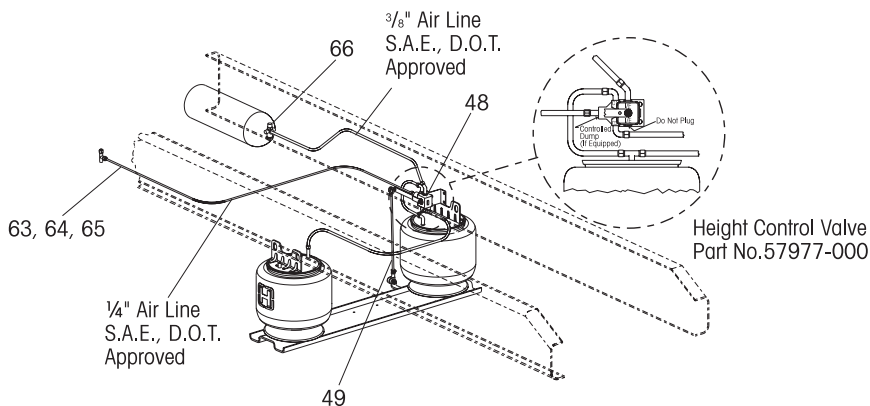
**PLUMBING DIAGRAM — HAS 360/400/402/460**



**PLUMBING DIAGRAM — HAS 40LH**



**PLUMBING DIAGRAM — HAS 120/150/190/210/230**



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