

SHOP MANUAL

ALLIS-CHALMERS

Models B-C-CA-G tractor serial stamped on top of transmission.

Models RC-WC-WF tractor serial stamped rear face of rear axle housing.

Models WD-WD45 tractor serial stamped rear face of transmission.

Model WD45 Diesel tractor serial number is located at left brake cover or on left rear side of transmission housing.

B-C-CA-RC engine serial stamped on top of left rear engine flange.

G engine serial stamped on side of left rear engine flange.

WC-WD-WD45-WD45 Diesel-WF engine stamped on left side of cylinder block.

BUILT IN THESE VERSIONS

Tractor Model	Tricycle Type		Axle Type	
	Single Wheel	Double Wheel	Non-Adjustable	Adjustable
B	No	No	Yes	Yes
C	Yes	Yes	No	Yes
CA	Yes	Yes	No	Yes
G	No	No	No	Yes
RC	Yes	Yes	No	No
WC	Yes	Yes	Yes	Yes
WD	Yes	Yes	No	Yes
WD45	Yes	Yes	No	Yes
WF	No	No	Yes	No
WD45D	Yes	Yes	No	Yes

INDEX (By Starting Paragraph)

MODELS	B-C	CA	G	RC	WC,WF	WD, WD45	WD45 Diesel
BELT PULLEY	311	311	308	310	310	310	310
BRAKES							
Adjustment	300	301	304	305	305	306	306
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Reline	300	302	304A	305A	305A	306A	306A
CARBURETOR (Not LP-Gas)	110	110	110	110	110	110	
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Final drive clutch		284					
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MODELS	B-C	CA	G	RC	WC.WF	WD.WD45	WD45
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						Prior	After Ser.
						Ser.	127007,
						127008	WD45
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Shifter forks	201	207	214	225	225	232	239

CONDENSED SERVICE DATA

(WD 45 Diesel)

GENERAL

Tractor Model	WD 45 Diesel
Engine Make	Own
Engine Model	45D
Cylinders	6
Bore, Inches	3 7/16
Stroke, Inches	4 1/8
Displacement, Cubic Inches	230
Compression Ratio	15.5:1
Pistons Removed From?	Above
Main Bearings, Number of	7
Main Bearings, Adjustable?	No
Rod Bearings, Adjustable?	No
Cylinder Sleeves	Wet
Generator, Make	D-R
Starter, Make	D-R
Injection Nozzle, Make	Bosch
Injection Pump, Make	Bosch
Injection Pump, Model	PSB

TUNE-UP

Firing Order	1-5-3-6-2-4
Valve Tappet Gap, Inlet	0.010 H
Valve Tappet Gap, Exhaust	0.019 H
Inlet Valve Face Angle	45°
Exhaust Valve Face Angle	45°
Inlet Seat Angle	45°
Exhaust Seat Angle	45°
Injection Timing, Degrees BTC	21
Timing Mark Location	Flywheel

TUNE-UP (Cont.)

Tractor Model	WD 45 Diesel
Engine Low Idle RPM	600
Engine High Idle RPM	1975
Engine Loaded RPM	1625
Belt Pulley Loaded RPM	1460
PTO Loaded RPM	548

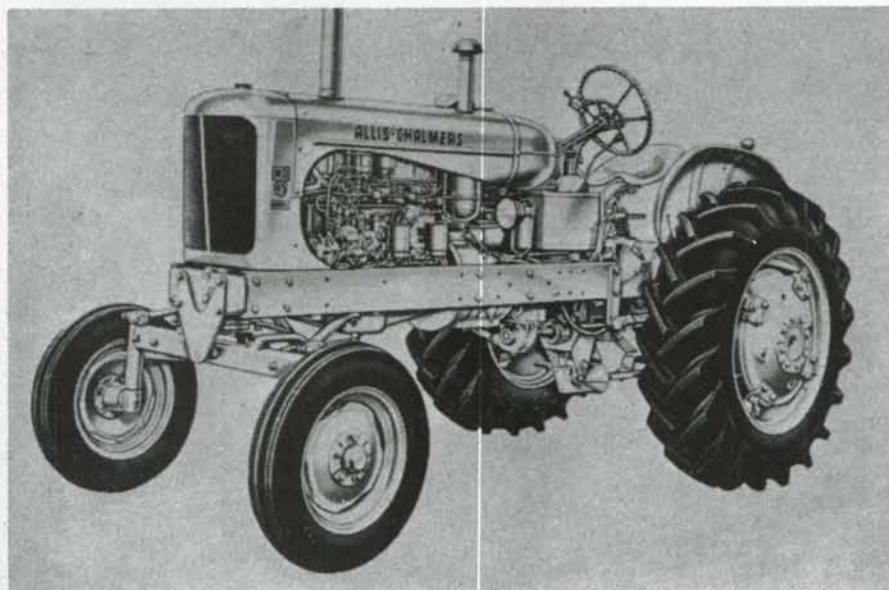
SIZES—CAPACITIES—CLEARANCES

(Clearances in Thousandths)

Crankshaft Journal Diameter	2.4975
Crankpin Diameter	1.998
Camshaft Journal Diameter, Numbers 1, 2 and 3	1.9985
Camshaft Journal Diameter, Number 4	1.2485
Piston Pin Diameter	0.9996
Valve Stem Diameter	0.3095
Compression Ring, Width	1/8
Oil Ring, Width	3/16
Main Bearings, Diameter Clearance	2.3-4.5
Rod Bearings, Diameter Clearance	1.5-3.5
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Flywheel Screws	95-105
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MODEL WD45 DIESEL

CONDENSED SERVICE DATA

(All Non-Diesel Models)

TRACTOR MODEL	B (BE engine)	B-C CA	RC	WC WF	WD	G	WD45
GENERAL							
Engine Make	Own	Own	Own	Own	Own	Cont'l.	Own
Engine Model	BE	CE				N62	WD45
Cylinders	4	4	4	4	4	4	4
Bore—Inches	3¼	3¾	3¾	4	4	2¾	4
Stroke—Inches	3½	3½	3½	4	4	3½	4.5
Displacement—Cubic Inches	116	125	125	201	201	62	226
Compression Ratio Non LP-Gas	4.92	6.2	5.75	5.5	5.75	6.5	6.45
Compression Ratio Non LP-Gas	4.67	5.75			5.0, 5.5	5.4	5.25
Compression Ratio Non LP-Gas		5.2, 4.7			4.5, 6.6		4.75
Compression Ratio LP-Gas							7.2
Pistons Removed From:	Above	Above	Above	Above	Above	Below (3)	Above
Main Bearings, Number of	3	3	3	3	3	2	3
Main Bearings, Adjustable?	(1)	(1)	(1)	(1)	(1)	No	(1)
Rod Bearings, Adjustable?	(1)	(1)	(1)	(1)	(1)	No	(4)
Cylinder Sleeves	Wet	Wet	Wet	Wet	Wet	None	Wet
Forward Speeds	3	*	4	4	4	3	4
Generator & Starter Make	D-R	D-R	D-R	D-R	D-R	D-R	D-R
*Band C - 3 speeds, CA - 4 speeds.							
TUNE UP							
Firing Order	1, 2, 4, 3	1, 2, 4, 3	1, 2, 4, 3	1, 2, 4, 3	1, 2, 4, 3	1, 3, 4, 2	1, 2, 4, 3
Valve Tappet Gap	.010H	B&C .010H CA .012H	.010H	.012H	.012H	.012C	.012H
Valve Seat and Face Angle	45	45	45	45	45	45	45
Ignition Distributor Make	None	D-R	None	None	D-R	D-R	D-R
Ignition Distributor Model		1111735			1111745	1111708	1111745
Ignition Magneto Make	F-M	F-M	F-M	F-M	F-M	None	None
Breaker Gap	.020	.020	.020	.020	.020	.020	.020
Magneto Lag Angle	30°	30°	30°	30°	30°		
Magneto Impulse Trips	TC	TC	TC	TC	TC		
Retarded Timing Inches or Deg.	TC	TC	TC	TC	TC	3°B	TC
Full Advanced Timing Deg.	30°B	30°B	30°B	30°B	30°B	17°B	30°B
Mark Indicating:							
Retarded Timing		DC				Notch	DC
Full Advanced Timing	Fire	Fire	Fire	Fire	Fire		Fire
Mark Location—Flywheel, Fan Pulley	Fly.	Fly.	Fly.	Fly.	Fly.	F.P.	Fly.
Spark Plug—Make		Auto-Lite, AC or Champion					
Model for Gasoline		AN7 Auto-Lite, or 45 AC or J8 Champion					
Model for Low Octane		A11 Auto-Lite or 47 AC or J11 Champion					
Electrode Gap	.035	.032	.035	.035	.035	.025	.030
Carburetor Make Non LP-Gas		Marvel-Schebler and Zenith					
Model (Marvel-Schebler)				TSX159	TSX159	Mar.-Scheb.	Mar.-Scheb.
Model (Zenith)	61AJ7	161J7	161J7	161X7	161AX	TSV13	TSX464; 561
Float Setting (Marvel-Schebler)				9/32	9/32	¼	9/32
Float Setting (Zenith)	1 5/32	1 5/32	1 5/32	1 5/32	1 5/32		
Engine Low Idle rpm	475	475	475	475	475	475	475
Engine High Idle rpm	1850	*	1850	1575	1720	2100	1720
Engine Loaded rpm	1400	*	1500	1300	1400	1800	1400

SIZES—CAPACITIES—CLEARANCES

(Clearances in thousandths)

Crankshaft Journal Diameter—Front	2.2495	2.2495	2.2495	2.436	2.436	1.9995	2.436
Crankshaft Journal Dia., Center and Rear	2.2495	2.2495	2.2495	2.4775	2.4775	1.9995	2.4775
Crankpin Diameter	1.937	1.937	1.937	2.3745(2)	2.3745	1.4995	2.3745
Camshaft Journal Dia., Front and Center	1.7495	1.7495	1.7495	1.8745	1.8745	1.750	1.8745
Camshaft Journal Dia., Rear	1.7495	1.7495	1.7495	1.8745	1.8745	1.250	1.8745
Piston Pin Diameter	.8131	.8131	.8131	.9892	.9892	.5434	.9892
Valve Stem Diameter	11/32	11/32	11/32	3/8	3/8	5/16	3/8
Compression Ring Width	1/8	1/8	1/8	1/8	1/8	1/8	1/8
Oil Ring—Width	3/16	3/16	3/16	3/16	3/16	3/16	3/16
Main Bearings, Diam. Clearance	1-2	1-2	1-2	2-3	2-3	1.5-2.0	2-3
Rod Bearings, Diam. Clearance	1-2	1-2	1-2	1-3	1-3	1.5-2.0	1-3
Piston Skirt Clearance	2.5-4.5	2.5-4.5	2.5-4.5	2.5-4.5	2.5-4.5	2.0	2.5-4.5
Crankshaft End Play	1-5	1-5	1-5	3-7	3-7	3-7	3-7
Camshaft Bearing Clearance	2-4	2-4	2-4	2-3	2-4	3-4.5	2-4
Cooling System—Gallons	2	2	2	4	3½	1.6	3½
Crankcase Oil—Quarts	4	4	4	6	6	3½	6.0
Transmission—Quarts				4			
Differential—Quarts			6	6			
Transmission & Differential—Quarts	6	6	10	10	17	8	17
		(CA) 8					
Final Drive, Each—Quarts	.75	.75	.5	.75	1.75		1.75
Add for PTO and/or BP	1	1	1	1	1		1

- (1) Bearings have shims which only control crush of shell insert. (2) On WC prior to serial 3665 crankpin diameter is 1.9995. (3) Refer to text for alternative method of piston removal. (4) On engines prior W45FG1001, bearings have shims which only control crush of shell insert. On engines after W45FG1001, the bearings are shimless. *See paragraph 115.

FRONT SYSTEM—TRICYCLE AND AXLE TYPES

ADJUSTMENT OF PEDESTAL AND FRONT STEERING GEAR

Models C-CA-RC-WC-WD-WD45

1. C-CA SINGLE FRONT WHEEL. To adjust vertical spindle bearings, vary the shims (4—Fig. AC1), located between top of shaft and bearing cone. Radiator must be removed to obtain access to shims.

Backlash between bevel gears of front (auxiliary) steering unit should be .002, and is adjusted by varying the shims (9) after removing the radiator. Alternate the shims with gaskets to prevent oil leaks.

1A. C-CA ADJUSTABLE FRONT AXLE. The front support unit on these models houses the front steering gear and carries the pivot pin for the front axle. Internal construction, Fig. AC2, is same as single wheel models. To adjust, follow same procedure as outlined for single wheel C and CA in preceding paragraph.

1B. C-CA DUAL FRONT WHEELS. To adjust vertical spindle bearings, vary the shims (4—Fig. AC3) under cap screw (2) at top of shaft. To gain access to shims, remove the pedestal unit from the front support.

Backlash between bevel gears of front (auxiliary) steering gear should be .002. Adjust by varying the shims (9) being sure to alternate shims with gaskets to prevent oil leaks.

2. RC-WC-WD-WD45 SINGLE FRONT WHEEL. On RC-WC, and WD models prior serial WD25129, the wheel fork and vertical spindle are integral as shown in Fig. AC4. On later WD, after serial WD25128, and WD45, the wheel fork is flange bolted to the vertical spindle as shown in Fig. AC5.

Adjust vertical spindle bearings by varying shims (4) located at top of shaft underneath the bearing cone retainer.

To adjust steering wormshaft bearings, vary shims (46—Fig. AC6) to obtain free rotation with zero end play. Mesh of worm with sector is not adjustable.

Front wheel bearings are adjusted by varying the number of shims (40—Fig. AC4) located between the bearing retainer and wheel hub.

2A. RC-WC-WD-WD45 DUAL FRONT WHEELS. To adjust the vertical spindle shaft bearings to the desired .001-.003 end play, vary number

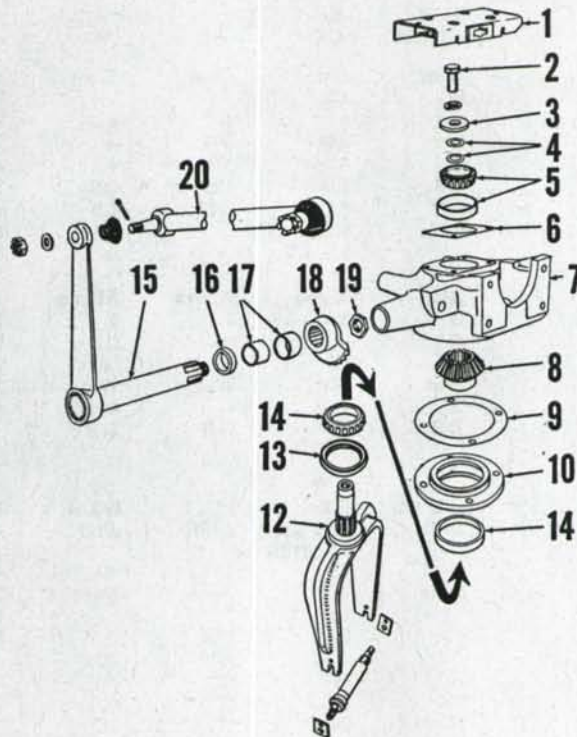


Fig. AC1—Models C and CA single wheel tricycle version front support and front steering gear assembly.

1. Radiator support
2. Cap screw
3. Washer
4. Shims
5. Bearing cone & cup
6. Gasket
7. Front support
8. Bevel pinion
9. Shims & gaskets
10. Bearing retainer
12. Vertical shaft & fork
13. Oil seal
14. Bearing cup & cone
15. Steering arm shaft
16. Oil seal
17. Bushings
18. Bevel segment gear
19. Retaining nut
20. Drag link

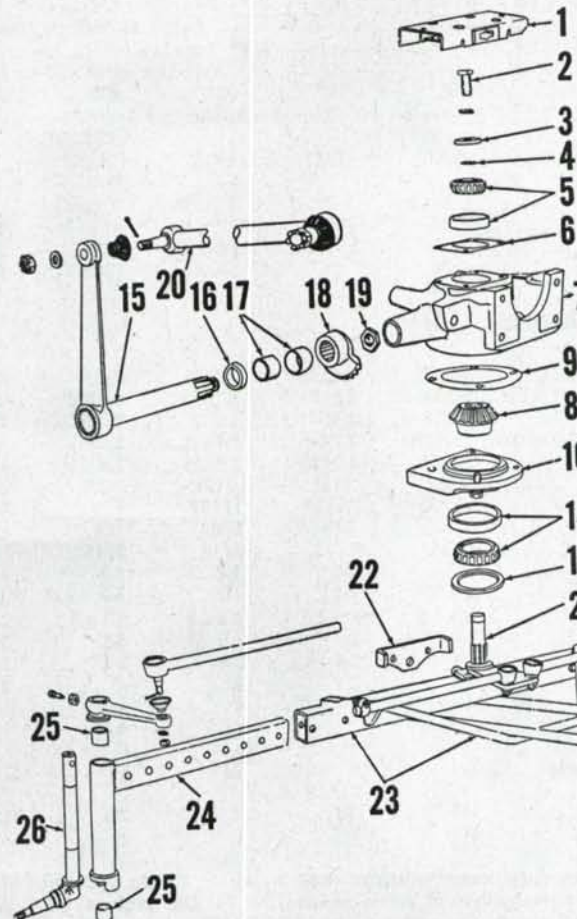


Fig. AC2—Models C and CA adjustable axle version front support, front steering gear, and axle assembly.

1. Radiator support
2. Cap screw
3. Washer
4. Shims
5. Bearing cone & cup
6. Gasket
7. Front support
8. Bevel pinion
9. Gasket
10. Bearing retainer
13. Oil seal
14. Bearing cone & cup
15. Steering arm shaft
16. Oil seal
17. Bushings
18. Bevel segment gear
19. Retaining nut
20. Drag link
21. Vertical spindle & center steering arm
22. Pivot bracket
23. Axle main member
24. Spindle support
25. Bushings
26. Steering spindle
27. Bushing (radius rod)

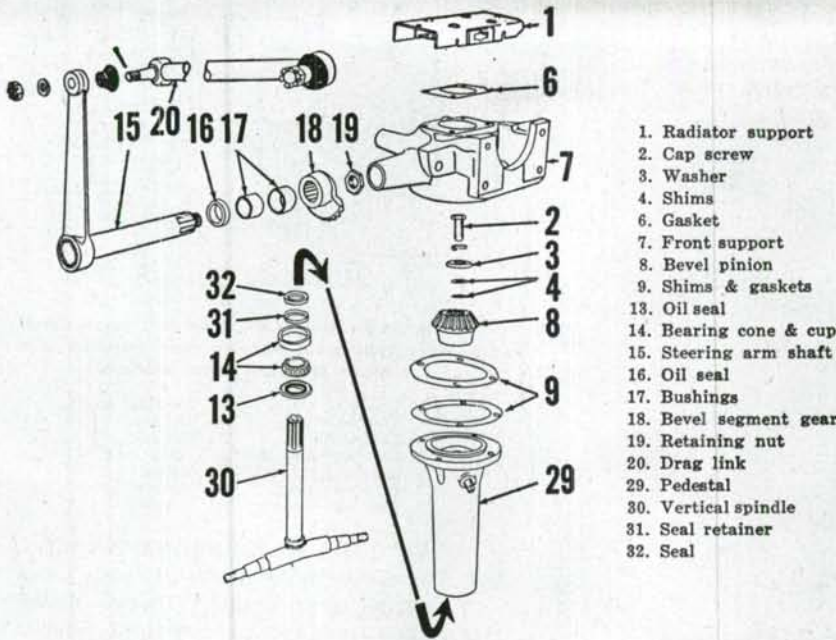


Fig. AC3—Models C and CA dual wheel tricycle version front support, pedestal, and front steering gear assembly.

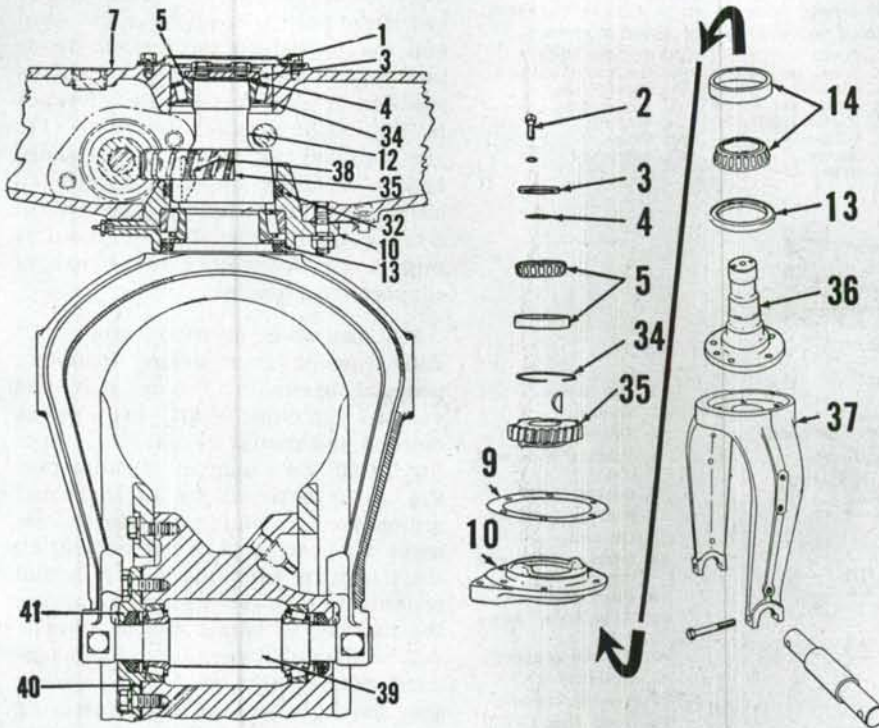


Fig. AC4—Models RC and WC single wheel tricycle version front support and main steering gear assembly. WD models prior to serial WD 25129 are similar.

Fig. AC5—Models WD & WD45 single wheel tricycle version main steering gear and wheel fork assembly. Effective on tractors after serial WD 25129. Refer to Fig. AC 4 for construction details prior to WD 25129.

of shims (60—Fig. AC8) located at bottom of spindle.

To adjust steering wormshaft bearings, vary the number of shims (46—Fig AC6) to obtain free rotation with zero end play. Mesh of worm with sector is not adjustable.

2B. WC-WD ADJUSTABLE FRONT AXLE. The vertical spindle bearings and front steering gear on these models, Figs. AC7 and AC9, are similar to the single wheel type, having the bolted-on type of fork. Adjustment procedure is also the same as outlined in paragraph 2.

OVERHAUL PEDESTAL & FRONT STEERING GEAR

Models C-CA-RC-WC-WD-WD45

3. C-CA SINGLE FRONT WHEEL. To disassemble pedestal and front gear unit, remove hood and radiator, and with tractor supported under torque tube, remove front wheel and horizontal spindle assembly from fork. Remove cap screw (2—Fig. AC1), washer (3), and shims (4) from top of vertical spindle shaft (12). Remove cap screws retaining bearing retainer (10) to front support (7), and bump shaft down through upper bearing cone and front support. Withdraw shaft, gear and bearing retainer assembly as a unit from bottom of front support. The need and the procedure for further disassembly will be determined by an inspection of the parts and by reference to Fig. AC1. Presized bushings (17) are supplied for steering arm shaft, and if carefully installed require no sizing after installation.

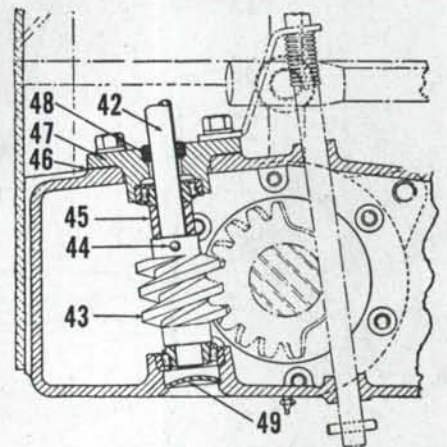


Fig. AC6—Models RC, WC, WD & WD45 single wheel, dual wheel, and adjustable axle type steering gear assembly.

- 42. Worm shaft
- 43. Worm
- 44. Retaining pin
- 45. Spacer
- 46. Shims
- 47. Bearing carrier
- 48. Oil seal
- 49. Expansion plug

- 1. Cover
- 3. Washer
- 4. Shims
- 5. Bearing cone
- 7. Front support
- 10. Bearing retainer
- 12. Vertical shaft & fork
- 13. Oil seal
- 32. Oil seal
- 34. Snap ring
- 35. Sector
- 38. Sector key
- 39. Horizontal spindle
- 40. Shims
- 41. Bearing retainer

- 2. Cap screw
- 3. Washer
- 4. Shims
- 5. Bearing cone & cup
- 9. Gasket
- 10. Bearing retainer
- 13. Oil seal
- 14. Bearing cone & cup
- 34. Snap ring
- 35. Sector
- 36. Vertical spindle
- 37. Wheel fork

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