

# SHOP MANUAL

# ALLIS-CHALMERS

MODELS D-19

D-19 DIESEL

Tractor serial number is stamped on the left front of torque tube. Engine serial number is stamped on the center left side of the engine block. Transmission serial number is stamped on the lower right hand corner of rear face of transmission case.

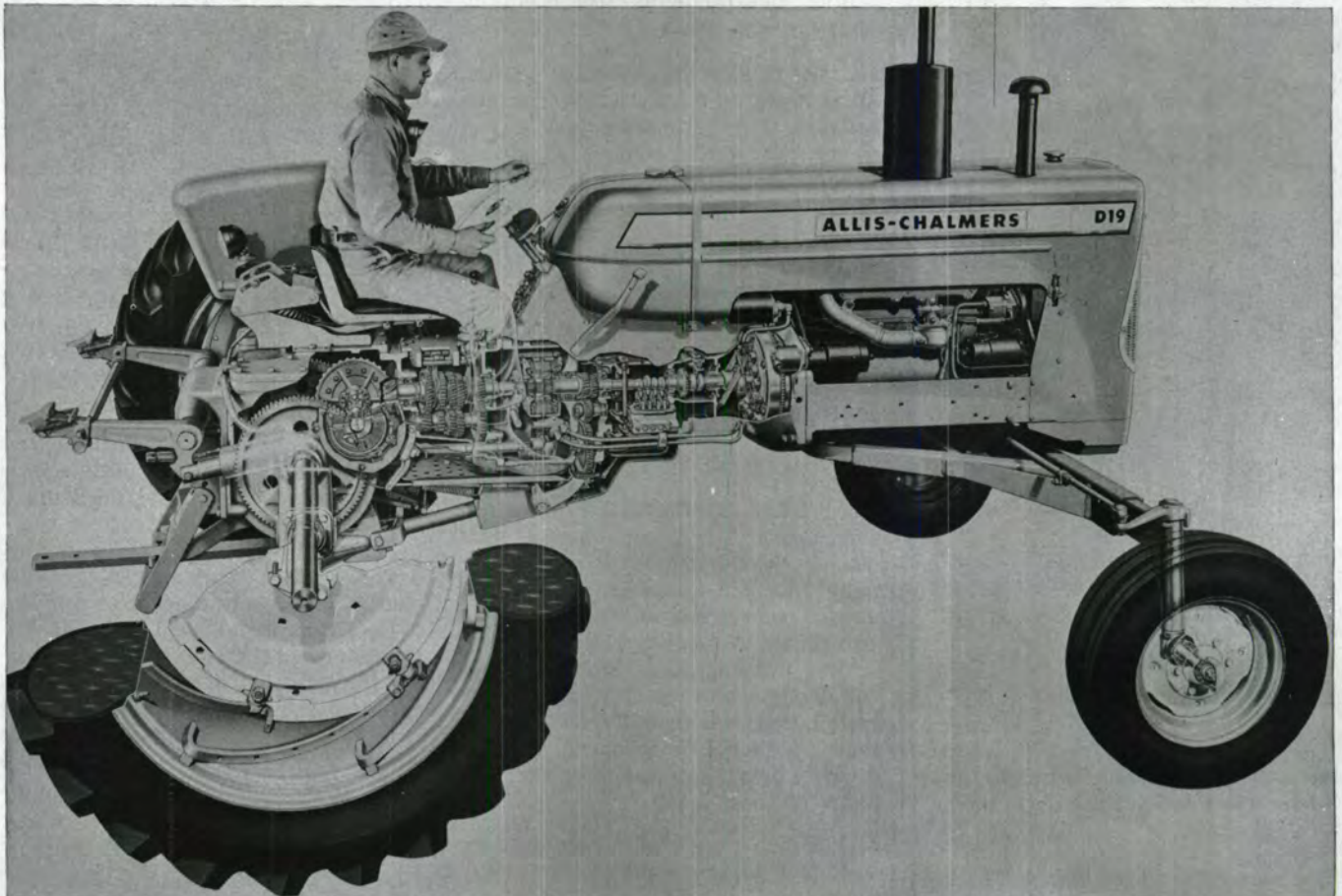
The D-19 tractor is available with an LP-Gas, gasoline or a turbo-charged diesel engine in dual wheel tricycle, single wheel tricycle or adjustable axle versions.

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# CONDENSED SERVICE DATA

GENERAL	NON-DIESEL	DIESEL	TUNE-UP (Cont.)	NON-DIESEL	DIESEL
Engine Make .....	Own	Own	Carburetor make, Gasoline .....	Marvel-Schebler	.....
Engine Model .....	G-262	D-262T	Model, Gasoline .....	TSX-848	.....
Cylinders .....	6	6	Float Setting (Inches) .....	1/4	.....
Bore—Inches .....	3.5625	3.5625	Injection Pump Make .....	.....	Roosa-Master
Stroke—Inches .....	4.375	4.375	Injection Pump Model & Timing .....	.....	See Paragraph 86
Displacement—Cubic Inches .....	262	262	Engine Low Idle RPM .....	375-425	650-700
Compression Ratio, Except LPG .....	8:1	14:1	Engine High Idle RPM .....	2275-2300	2275-2300
Compression Ratio, LPG .....	9.65:1	.....	Engine Loaded RPM .....	2000	2000
Pistons Removed From .....	Above	Above	<b>SIZES—CAPACITIES—CLEARANCES</b>		
Main Bearings, Number of .....	7	7	Crankshaft Journals Diameter .....	2.4975	2.4975
Main Bearings Adjustable? .....	No	No	Crankpin Diameter .....	1.998	1.998
Rob Bearings Adjustable? .....	No	No	Camshaft Journal Diameter		
Cylinder Sleeves .....	Wet	Wet	Rear .....	1.2485	1.2485
Forward Speeds .....	8	8	All Except Rear .....	1.9985	1.9985
Reverse Speeds .....	2	2	Piston Pin Diameter .....	0.9996	0.9996
Generator & Starter Make .....	D-R	D-R	Valve Stem Diameter		
Tightening Torques			Intake .....	0.3426	0.3095
General Recommendations .....	See End of Shop Manual		Exhaust .....	0.3412	0.3095
<b>TUNE-UP</b>			Piston Ring End Gap (Minimum)		
Firing Order .....	1-5-3-6-2-4		Top Ring .....	0.007	0.022
Valve Tappet Gap (Hot)			2nd & 3rd Rings .....	0.014	0.014
Intake .....	0.015	Refer to	4th Ring .....	0.014	0.014
Exhaust .....	0.020	Paragraph 40A	5th Ring .....	.....	0.007
Valve Seat & Face Angle			Main Bearing Diam. Clearance .....	—0.0013-0.004—	
Intake .....	45°	30°	Rod Bearing Diam. Clearance .....	—0.0011-0.0036—	
Exhaust .....	45°	45°	Piston Skirt Clearance .....	0.0023-	0.004-
Ignition Distributor Make .....	D-R	.....	0.0048	0.0065	-
Ignition Distributor Model .....	1112615	.....	Crankshaft End Play .....	—0.003-0.009—	
Breaker Gap .....	0.022	.....	Camshaft Bearing Clearance .....	—0.002-0.0046—	
Retarded Timing .....	TDC	.....	Camshaft End Play .....	—0.003-0.008—	
Full Advanced Timing Degrees .....	25° BTDC	.....	Cooling System—Quarts .....	16	17
Mark Indicating:			Crankcase Oil (With Filter)—Quarts	7	7
Retarded Timing .....	"TDC"	.....	"Power-Director" & Hydraulic Sump,		
Full Advanced Timing .....	25°	.....	Quarts .....	22	22
Mark Location .....	Crankshaft Pulley		Transmission & Differential,		
Spark Plugs .....	See Paragraph 101		Quarts .....	32	32
Carburetor Make, LP-Gas .....	Ensign	.....	Final Drives, Each—Quarts .....	8	8
Model, LP-Gas .....	XG	.....			



## FRONT SYSTEM

### SINGLE WHEEL TRICYCLE

**1. WHEEL ASSEMBLY.** The single front wheel assembly may be removed after raising front of tractor and removing bolt (3—Fig. AC1) at each end of wheel spindle (1).

To renew bearings and/or seals, first remove wheel assembly; then, unbolt and remove bearing retainer (10—Fig. AC2), seal (4), seal retainer (5) and shims (9). Drive or press on opposite end of spindle to remove spindle (8), bearing cones (7) and bearing cup from retainer side of hub. Then drive remaining seal and bearing cup out of hub. Remove bearing cones from spindle.

Soak new felt seals in oil prior to installing seals and seal retainers. Drive bearing cup into hub until cup is firmly seated. Drive bearing cones tightly against shoulders on spindle. Pack bearings with No. 2 wheel bearing grease. Install spindle and bearings in hub and drive remaining bearing cup in against cone. When installing bearing retainer, vary number of shims (9—Fig. AC2) to give a free rolling fit of bearings with no end play.

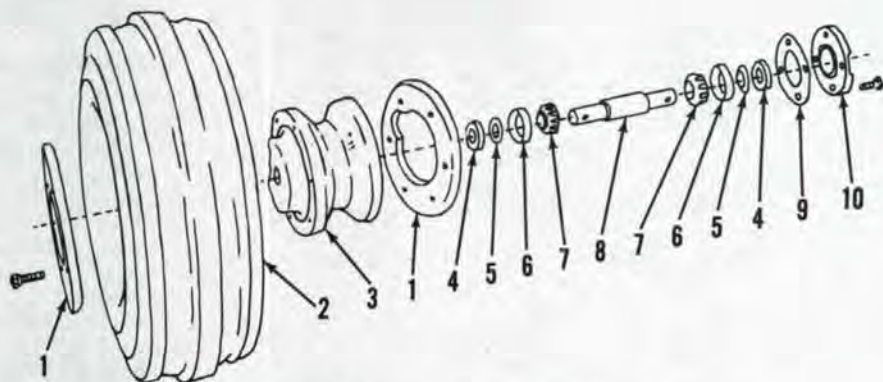


Fig. AC2 — Exploded view of single front wheel assembly.

- |                   |                       |                      |
|-------------------|-----------------------|----------------------|
| 1. Side rings (2) | 4. Seals (2)          | 8. Spindle           |
| 2. Tire           | 5. Seal retainers (2) | 9. Shims             |
| 3. Wheel hub      | 6. Bearing cups (2)   | 10. Bearing retainer |
|                   | 7. Bearing cones (2)  |                      |

Front wheel bearings should be repacked with No. 2 wheel bearing grease after each 500 hours of use.

If necessary to renew wheel hub or repair tire, deflate tire before unbolting and removing tire retaining rings (1—Fig. AC2).

**2. R&R SINGLE WHEEL FORK.** Raise front end of tractor, remove bolts (3—Fig. AC1) from each end of wheel spindle and remove wheel assembly from fork. Unbolt and remove fork (2) from steering gear sector shaft (14—Fig. AC8 or Fig. AC17).

Make sure that steering gear is centered and reinstall fork with caster to rear. Tighten cap screws that retain fork to sector gear shaft to a torque of 130-140 Ft.-Lbs.

### DUAL WHEEL TRICYCLE

**3. WHEEL ASSEMBLY.** Front wheel and bearing construction on dual wheel tricycle models is of conventional design. Stamped steel wheel disc is reversible on hub. Bearing adjustment is made by tightening retaining nut on spindle until bearings are firmly seated, backing nut off one castellation and installing cotter pin. Bearings should be repacked with No. 2 wheel bearing grease after each 500 hours of use.

Dual wheel pedestal spindles are equipped with bearing spacers (15—

Fig. AC3). Place spacer on spindle with flange of spacer against shoulder on spindle. Install seal over spacer with crimped edge of seal shell towards spacer (lettered side of shell towards bearing).

**4. PEDESTAL.** Dual wheel pedestal (10—Fig. AC3) can be unbolted and removed from the sector shaft bearing retainer (62—Fig. AC6 or Fig. AC16) after raising front end of tractor.

To disassemble pedestal, remove cap screw (4—Fig. AC3), lock washer (5), flat washer (6), shims (7) and sleeve (9) with internal snap ring (8). Spindle (14), seal (13) and bearing cone (12) can then be removed from bottom end of pedestal. Drive bearing cup (11) from bottom of pedestal and bearing cone from spindle.

To reassemble, drive bearing cup into bottom of pedestal until cup is firmly seated against shoulder. Pack bearing cone with No. 2 wheel bearing grease and insert cone in cup. Seal should be soaked in oil prior to installation. Apply sealer to outer rim of seal and install seal with lip towards bearing. Carefully insert spindle through seal and bearing making sure that shoulder on spindle is seated firmly against bearing cone. Place sleeve with end nearest internal snap ring (8) on spindle shaft. Vary number of shims (7) to remove all end play from spindle shaft without creating any binding tendency.

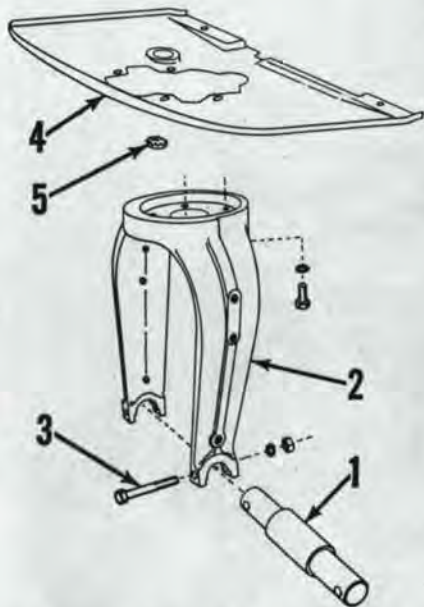


Fig. AC1 — Exploded view of the single front wheel fork and associated parts.

- |              |               |
|--------------|---------------|
| 1. Spindle   | 4. Mud shield |
| 2. Fork      | 5. Plug       |
| 3. Bolts (2) |               |

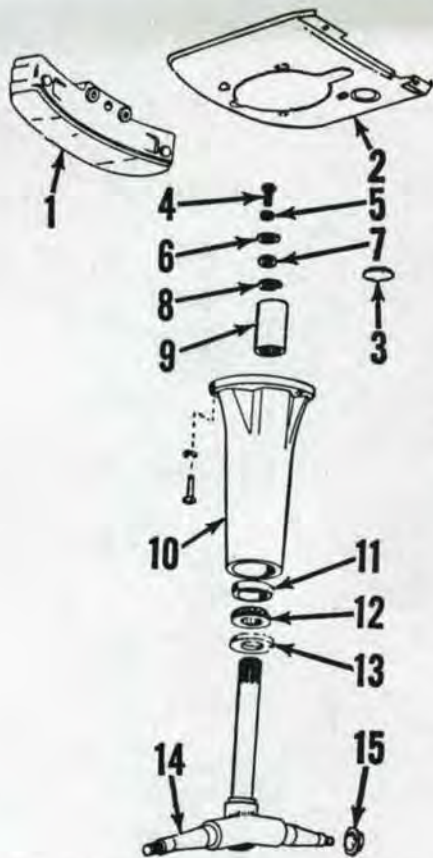


Fig. AC3 — Exploded view of dual wheel pedestal and associated parts.

- |                 |                         |
|-----------------|-------------------------|
| 1. Front weight | 9. Coupling sleeve      |
| 2. Mud shield   | 10. Pedestal            |
| 3. Plug         | 11. Bearing cup         |
| 4. Cap screw    | 12. Bearing cone        |
| 5. Lock washer  | 13. Seal                |
| 6. Washer       | 14. Spindle             |
| 7. Shims        | 15. Bearing spacers (2) |
| 8. Snap ring    |                         |

Make sure that hole in bottom of sector gear shaft (57—Fig. AC6 or Fig. AC16) is exactly crosswise with tractor and install pedestal with wheels in straight ahead position (caster to rear of tractor). Tighten cap screws retaining pedestal to bearing retainer to a torque of 70-75 Ft.-Lbs.

**ADJUSTABLE FRONT AXLE**

**5. WHEEL ASSEMBLY.** Front wheel and bearing construction on adjustable front axle models is of conventional design. Stamped steel wheel disc is reversible on hub. Bearing adjustment is made by tightening retaining nut on spindle until bearings are firmly seated, backing nut off one castellation and installing cotter pin. Bearings should be repacked with No. 2 wheel bearing grease after each 500 hours of use.

Crimped edge of seal shell should be towards shoulder on spindle when renewing seal (lettered side of seal shell towards bearing).

**6. ADJUSTMENTS.** The adjustable front axle provides wheel tread widths of 60-84 inches or 65-89 inches depending on whether front wheels are mounted with dish in or out.

Toe-in should be correct at each adjustment position when mark in notch of tie rod is in line with mark on tie rod shaft. (See Fig. AC5). However, it may be advisable to measure front wheel toe-in and adjust to 1/16-1/8 inch if necessary. Tighten bolts in tie rod clamps securely.

**7. RENEW AXLE CENTER (MAIN) MEMBER AND RADIUS ROD ASSEMBLY.** Support front end of tractor and remove bolts through center member and axle extensions (spindle supports). Loosen bolts in tie rod clamps and slide axle extensions with front wheels and spindles out of main

member and tie rod shafts out of tie rod tubes. Place floor jack under center member and unbolt rear pivot bracket from engine rear adapter plate. Lower the rear end of center member until pivot bracket clears the torque housing, roll to rear until front pivot pin clears front axle support and then pull center member out from under tractor. Remove rear pivot pin and bracket.

Reverse removal procedure to install new center member.

**8. RENEW AXLE PIVOT PINS AND FRONT PIVOT PIN BUSHING.** To renew axle rear pivot pin (19—Fig. AC4), support front of tractor, unbolt pivot pin bracket (20) from engine rear adapter plate and lower bracket until nut and pivot pin can be removed. Install new pin through radius rod and pivot bracket. Tighten nut securely. Install cotter pin, then bolt pivot bracket back to engine rear adapter plate. No rear bushing is provided.

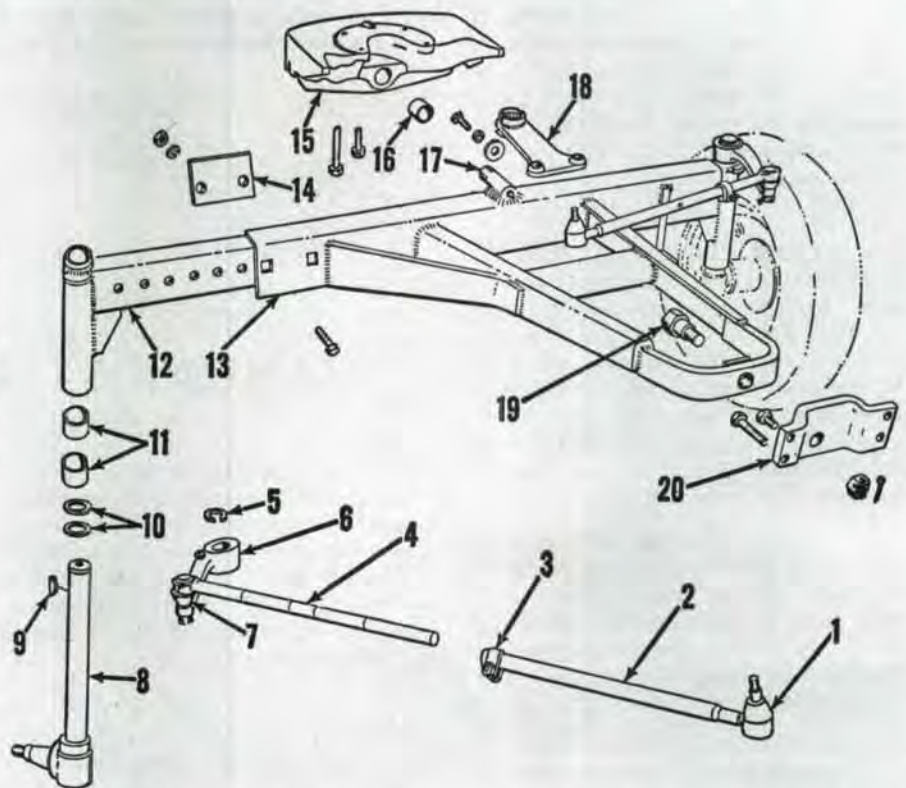


Fig. AC4 — Exploded view of adjustable front axle assembly and associated parts. Center (main) member and radius rod (13) is a welded assembly.

- |                        |                    |                      |                      |
|------------------------|--------------------|----------------------|----------------------|
| 1. Dust cover          | 6. Spindle arm     | 11. Bushings         | 16. Bushing          |
| 2. Socket assy., inner | 7. Dust cover      | 12. Spindle support  | 17. Pivot pin, front |
| 3. Tie rod clamp       | 8. Spindle         | 13. Axle main member | 18. Steering arm     |
| 4. Socket assy., outer | 9. Woodruff key    | 14. Adjusting plate  | 19. Pivot pin, rear  |
| 5. Snap ring           | 10. Thrust washers | 15. Axle support     | 20. Pivot plate      |

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