SHOP MANUAL

ALLIS-CHALMERS

MODELS 180, 185, 190, 190XT, 200, 7000

INDEX (By Starting Paragraph)

CONDENSED SERVICE DATA

	180, 185 & 190		One-Ninety XT			200,
	Gasoline	Diesel	Gasoline	LP-Gas	Diesel	7000
GENERAL						
Engine Make	Own	Own	Own	Own	Own	Own
Engine Model	G2500	2800	G2800XT	G2800LPXT	2900XT	2900
Number of Cylinders	6	6	6	6	6	6
Bore—Inches	3¾	3-7/8	3-7/8	3-7/8	3-7/8	3-7/8
Stroke—Inches	4	4¼	4¼	4¼	4¼	4¼
Displacement—Cubic Inches	265	301	301	301	301	301
Main Bearings, Number of	7	7	7	7	7	7
Cylinder Sleeves	Wet	Wet	Wet	Wet	Wet	Wet
Generator and Starter Make	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy	Delco-Remy#
#Some models are equipped with a Lucas starter.						
TUNE-UP						
Firing Order	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4	1-5-3-6-2-4
Valve Tappet Gap (Hot) Intake	.020	.015	.020	.020	.015	.015
Valve Tappet Gap (Hot) Exhaust	.025	.015	.025	.025	.015	.015
Inlet Valve Seat Angle (Degrees)	30	30	30	30	30	30
Exhaust Valve Seat Angle (Degrees)	45	45	45	45	45	45
Ignition Distributor Make	D-R	...	D-R	D-R	...	...
Breaker Gap	.016	...	.016	.016	...	...
Ignition Timing at 2200 rpm	26° BTDC	...	26° BTDC	26-28° BTDC	...	...
Timing Mark Location	Crankshaft Pulley		Crankshaft Pulley			
Spark Plug—						
A-C	45XL	...	45XL	42XL	...	...
Autolite	AG-3A	...	AG-3A	...	...	...
Champion	N-6	...	N-6	N-3	...	...
Electrode Gap	.025	...	.025	.020	...	...
Injection Timing						
190, 190XT and 200	...	28° BTDC	...	...	26° BTDC	24° BTDC##
180, 185 and 7000	...	26° BTDC	...	...	...	18° BTDC
Injection Pump Make	...	Roosa-Master	...	...	Roosa-Master	Roosa-Master
Carburetor Make	Holley	...	Holley	Ensign	...	...
Carburetor Model	1970	...	1970	CBX	...	...
Battery Terminal, Grounded	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Engine Low Idle rpm	425†	675	425	425	675	775
Engine High Idle rpm, No Load	2450†	2400††	2450	2450	2400	2400
Engine Full Load rpm	2200†††	2200†††	2200	2200	2200	2200

†Refer to paragraph 76 for 180 non-diesel. ††Refer to paragraph 72 for 180 diesel.
†††Full load rpm should be 2000 for all 180 models. ##Model 200 after serial no. 2D-69515 same as 7000.

SIZES—CAPACITIES—CLEARANCES
(Clearances in Thousandths)

Crankshaft Main Journal Diameter	2.7475		2.7475			
Crankpin Diameter	2.373		2.373			
Camshaft Journal Diameter, All	2.1305		2.1305			
Piston Pin Diameter	1.2516		1.2516			
Valve Stem Diameter, Inlet	0.3717		0.3717			
Exhaust	0.3707		0.3707			
Main Bearing Diametral Clearance	1.6-4.3		1.6-4.3			
Rod Bearing Diametral Clearance	0.9-3.4		0.9-3.4			
Piston Skirt Diametral Clearance	1.5-4.0	3.5-6.0	1.5-4.0	1.5-4.0	3.5-6.0	4.5-7.0
Camshaft End Play	4-9		4-9			
Camshaft Bearings Diametral Clearance	2-6		2-5			
Camshaft End Play	3-9		3-9			
Cooling System Capacity, Quarts	18		18*			
Crankcase Oil, Quarts	8-12**		8-12**			
Power-Director and Hydraulic System, Quarts	24-36**		24-36**			26-28**
Transmission, Quarts	27-32**		27-32**			32-38**
Final Drive, Quarts (each)	8***		8			

*Capacity 22.5 qts. on 7000.
**Approximate capacity.
***Capacity 1 quart on 180 and 185 models.

CONDENSED SERVICE DATA CONT.

TIGHTENING TORQUES—FOOT-POUNDS

General Recommendations	See End of Shop Manual											
Connecting Rod Screws	40-45							40-45				
Cylinder Head Screws	150							150				
Flywheel Screws	68-73							68-73				
Injection Nozzel Nuts	...	9-12					...	...	9-12		11-13	
Main Bearing Screws	130-140							130-140				

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. 1) at each end of wheel axle (1).

To renew bearings and/or seals, first remove wheel assembly; then unbolt and remove bearing retainer (10—Fig. 2), seal (4), seal retainer (5) and shims (9). Drive or press on opposite end to remove axle (8), bearing cones (7) and bearing cup from retainer side of hub. Drive the 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 axle. Pack bearings with No. 2 wheel bearing grease. Install axle and bearing cup in against cone. When installing bearing retainer, vary number of shims (9—Fig. 2) to give bearings a free rolling fit with no end play.

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. 2).

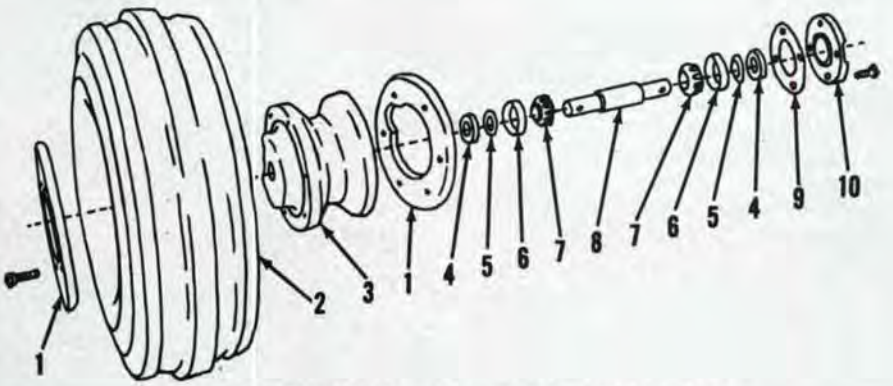

Fig. 2—Exploded view of single front wheel assembly.

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

2. **R&R SINGLE WHEEL FORK.** Raise front end of tractor, remove bolts (3—Fig. 1) from each end of wheel axle and remove wheel assembly from fork. Unbolt and remove fork (2) from steering gear shaft.

Make sure that steering gear is centered and reinstall fork with caster to rear. Tighten retaining screws to a torque of 180-190 ft.-lbs.

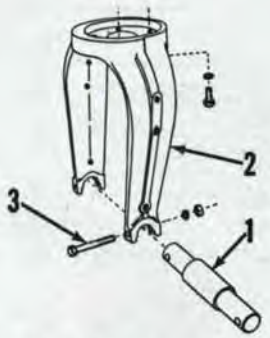

Fig. 1—Exploded view of the single front wheel fork and associated parts.

1. Axle
2. Fork
3. Bolts (2)

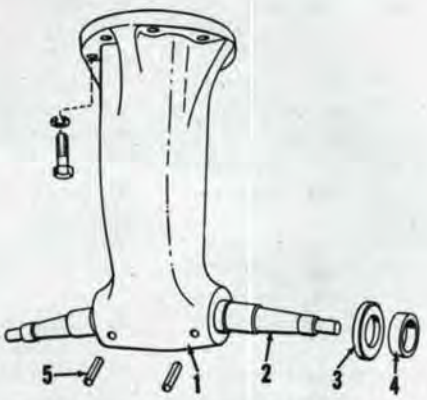

Fig. 3—Dual wheel tricycle spindles (2) can be removed after removing groove pins (5).

1. Pedestal
2. Spindle
3. Shield
4. Bearing spacer
5. Groove pin

DUAL WHEEL TRICYCLE

3. **WHEEL ASSEMBLY.** The 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 an external lip type seal (1—Fig. 4). The three lips on outside diameter of seal contact a steel wear sleeve that is pressed into the front wheel hub. Drive wear sleeve into hub with crimped edge of wear sleeve

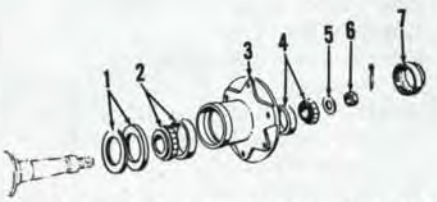

Fig. 4—Exploded view of wheel hub and bearing used on dual wheel tricycle and wide front axle models.

1. Wear sleeve and seal
2. Inner bearing
3. Wheel hub
4. Outer bearing
5. Washer
6. Nut
7. Hub cap

towards bearing until sleeve is ¼ inch below flush with hub.

4. **R&R PEDESTAL.** Raise front of tractor, then remove cap screws retaining pedestal (1—Fig. 3) to steering gear shaft.

When reinstalling, make certain that the steering gear shaft is centered and install pedestal with wheels in straight ahead position and caster to rear. Tighten retaining screws to 130-140 ft.-lbs. torque.

ADJUSTABLE FRONT AXLE

5. **WHEEL ASSEMBLY.** Refer to Fig. 4. Stamped 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. **AXLE ADJUSTMENTS.** The adjustable front axle provides wheel tread widths of 62-86 inches on 7000 models and 60-84 inches on all other models. Front wheels may be mounted inside out on some models to increase tread width.

Tie rods are grooved or threaded to facilitate toe-in adjustment; however, it may be advisable to measure front wheel toe-in and adjust to 1/16 to 1/8 inch. Tighten bolts in tie rod clamps securely.

7. **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 or remove bolts in tie rod clamps and slide axle extension (7—Fig. 5 or 5A) with front wheels and spindles out of main member and tie rod shafts out of tie rod tubes. Remove external power steering cylinder on models so equipped. On all models, place floor jack under center member and remove pivot pin (2—Fig. 5A) on 7000 models or rear pivot screw (4—Fig. 5) and front pivot pin (2) on all other models. Lower the axle until it clears the pivot brackets, then pull center member out from under tractor.

Bushing (3—Fig. 5) on all models except 7000 is pre-sized and if carefully installed should not need reaming. Pivot pin (2) should have 0.012-0.015 clearance in bushing (3) and 0.005-0.009 clearance in front support bore.

Reverse removal procedure to install new center member.

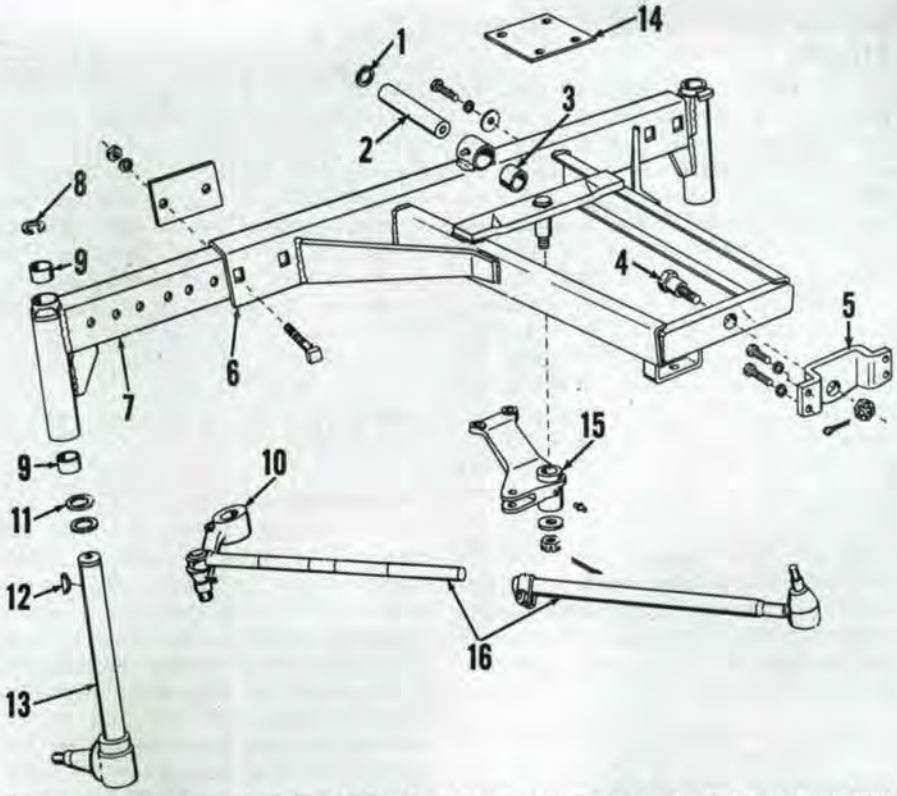

Fig. 5—Exploded view of adjustable front axle assembly used on all models except 7000. Steering arm (14) is used with internal cylinder type front support (Fig. 12). Steering arm (15) is used with external cylinder type steering (Fig. 11).

1. Snap ring
2. Axle front pivot pin
3. Bushing
4. Rear pivot screw
5. Rear pivot bracket
6. Axle main member
7. Axle extension
8. Snap rings
9. Spindle bushings
10. Spindle arm
11. Thrust washers
12. Key
13. Spindle
16. Tie rod

8. **SPINDLE BUSHINGS.** Support front end of tractor and remove front wheels. Remove snap ring (8—Fig. 5 or 5A), spindle arm (10) and Woodruff key (12). Spindle can then be removed from bottom of axle extension (spindle support). Drive bushings (9) from top and bottom of spindle bore and remove thrust washers (11) from spindles.

New spindle bushings are pre-sized and should not require reaming. Press or drive bushings into support flush with ends of spindle bore. Install two thrust washers on spindle and reassemble.

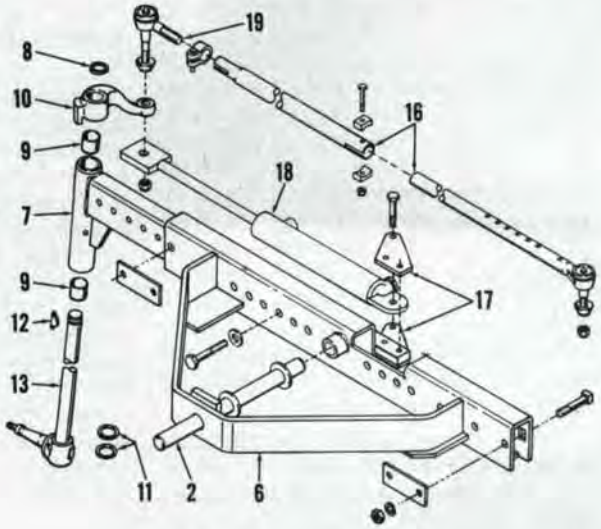

Fig. 5A—Exploded view of adjustable front axle assembly used on Model 7000. Refer to Fig. 5 for parts identification except for: 17. Cylinder brackets; 18. Power steering cylinder; 19. Tie rod end.