

Information and Instructions

This individual shop manual is one unit of a series on wheel type tractors. Contained in it are the necessary specifications and the brief but terse procedural data needed by a mechanic when repairing a tractor on which he has had no previous actual experience.

The material is arranged in a systematic order beginning with an index which is followed immediately by a Table of Condensed Service Specifications. These specifications include dimensions, fits, clearances and timing instructions. Next in order of arrangement is the procedures paragraphs.

In the procedures paragraphs, the order of presentation starts with the front axle system and steering and proceeding toward the rear axle. The last paragraphs are devoted to the power take-off and power lift systems. Interspersed where needed are additional tabular specifications pertaining to wear limits, torquing, etc.

HOW TO USE THE INDEX

Suppose you want to know the procedure for R&R (remove and reinstall) of the engine camshaft. Your first step is to look in the index under the main heading of ENGINE until you find the entry "Camshaft." Now read to the right where under the column covering the tractor you are repairing, you will find a number which indicates the beginning paragraph pertaining to the camshaft. To locate this wanted paragraph in the manual, turn the pages until the running index appearing on the top outside corner of each page contains the number you are seeking. In this paragraph you will find the information concerning the removal of the camshaft.

SHOP MANUAL

FORD

Models 1100-1110-1200-1210-1300-1310
1500-1510-1700-1710-1900-1910-2110

The tractor model number, serial number and engine number are stamped on an identification tag located on left side of transmission housing.

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DUAL DIMENSIONS

This service manual provides specifications in both the Metric (SI) and U.S. Customary systems of measurement. The first specification is given in the measuring system used during manufacture, while the second specification (given in parenthesis) is the converted measurement. For instance, a specification of "0.28 mm (0.011 inch)" would indicate that the equipment was manufactured using the metric system of measurement and the U.S. equivalent of 0.28 mm is 0.011 inch.

CONDENSED SERVICE DATA

	1100	1110	1200	1210
GENERAL				
Engine Make	Shibura			
Engine Model	LEK752C2	LEK757C	LEK802D	S723
Number of Cylinders	2	2	2	3
Bore	75 mm (2.95 in.)	75 mm (2.95 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Stroke	80 mm (3.15 in.)	80 mm (3.15 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Displacement	706 cc (43.1 cu. in.)	706 cc (43.1 cu. in.)	804 cc (49.1 cu. in.)	879 cc (53.6 cu. in.)
Compression Ratio	23:1	23:1	23:1	24:1
TUNE-UP				
Firing Order	2-1	2-1	2-1	1-2-3
Valve Clearance—Cold				
Intake	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Exhaust	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Valve Face Angle	45°			
Valve Seat Angle	45°			
Injection Timing, Static-BTDC	23°-24°	20°-21°	23°-24°	24°
Injector Opening Pressure	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)

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	1100, 1200	1110, 1210	1300	1300, 1500	1510, 1710	1700, 1900	1910, 2110
FINAL DRIVE	152	152	154	154	154, 156	158	158
FRONT AXLE AND STEERING							
Axle (2 Wheel Drive)	1	1	1	1	1	1	1
Axle (4 Wheel Drive)	3	8	8	3	8	3	8
Manual Steering Gear	15	15	15	15	15	15	15
Power Steering	20	20	20	20	20	20	20
HYDRAULIC SYSTEM							
Adjustments	175	175	175	175	175	175	175
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DUAL DIMENSIONS

This service manual provides specifications in both the Metric (SI) and U.S. Customary systems of measurement. The first specification is given in the measuring system used during manufacture, while the second specification (given in parenthesis) is the converted measurement. For instance, a specification of "0.28 mm (0.011 inch)" would indicate that the equipment was manufactured using the metric system of measurement and the U.S. equivalent of 0.28 mm is 0.011 inch.

CONDENSED SERVICE DATA

	1100	1110	1200	1210
GENERAL				
Engine Make	Shibura			
Engine Model	LEK752C2	LEK757C	LEK802D	S723
Number of Cylinders	2	2	2	3
Bore	75 mm (2.95 in.)	75 mm (2.95 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Stroke	80 mm (3.15 in.)	80 mm (3.15 in.)	80 mm (3.15 in.)	72 mm (2.83 in.)
Displacement	706 cc (43.1 cu. in.)	706 cc (43.1 cu. in.)	804 cc (49.1 cu. in.)	879 cc (53.6 cu. in.)
Compression Ratio	23:1	23:1	23:1	24:1
TUNE-UP				
Firing Order	2-1	2-1	2-1	1-2-3
Valve Clearance—Cold				
Intake	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Exhaust	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Valve Face Angle	45°			
Valve Seat Angle	45°			
Injection Timing, Static-BTDC	23°-24°	20°-21°	23°-24°	24°
Injector Opening Pressure	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)

CONDENSED SERVICE DATA (CONT.)

TUNE-UP (CONT.)

	1100	1110	1200	1210
Governed Speeds – Engine Rpm				
Low Idle	750-850	750-850	750-850	750-850
High Idle (No Load)	2750-2800	2750-2800	2850-2900	2850-2900
Rated (Full Load)	2600	2600	2700	2700
Power Rating at Pto				
Shaft	8.2 kW (11 hp)	8.6 kW (11.5 hp)	10 kW (13.5 hp)	10 kW (13.5 hp)
Battery				
Volts	12			
Ground Polarity	Negative			

CAPACITIES

Cooling System	3.0 L (3.2 U.S. qt.)	2.5 L (2.6 U.S. qt.)	4.0 L (4.2 U.S. qt.)	2.3 L (2.5 U.S. qt.)
Crankcase*	3.3 L (3.5 U.S. qt.)	3.3 L (3.5 U.S. qt.)	4.0 L (4.2 U.S. qt.)	3.3 L (3.5 U.S. qt.)
Fuel Tank	14 L (3.7 U.S. gal.)	18 L (4.8 U.S. gal.)	14 L (3.7 U.S. gal.)	18 L (4.8 U.S. gal.)
Standard Transmission & Rear Axle	18.9 L (20 U.S. qt.)	17 L (18 U.S. qt.)	18.9 L (20 U.S. qt.)	17 L (18 U.S. qt.)
Hydrostatic Transmission & Rear Axle .....	....	15.5 L (16.4 U.S. qt.)	....	15.5 L (16.4 U.S. qt.)
Front Axle Differential Case	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)	1.5 L (1.6 U.S. qt.)
Front Axle Reduction Case (Each)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)	0.2 L (0.21 U.S. qt.)

*With filter change.

SPECIAL TORQUES

Connecting Rod Caps	24-27 N·m (18-20 ft.-lbs.)	24-27 N·m (18-20 ft.-lbs.)	24-27 N·m (18-20 ft.-lbs.)	29-34 N·m (22-25 ft.-lbs.)
Main Bearing Holders .....	....	....	71-81 N·m (52-60 ft.-lbs.)	25-29 N·m (18-25 ft.-lbs.)
Crankshaft Rear Plate	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)	....	....
Flywheel	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	56-69 N·m (43-51 ft.-lbs.)
Cylinder Head	146-152 N·m (108-112 ft.-lbs.)	128 N·m (94 ft.-lbs.)	150-155 N·m (110-114 ft.-lbs.)	48 N·m (35 ft.-lbs.)

CONDENSED SERVICE DATA

	1300	1310	1500	1510
GENERAL				
Engine Make	Shibura			
Engine Model	LEK802D	S753	LET862C	K773
Number of Cylinders	2	3	2	3
Bore	80 mm (3.15 in.)	75 mm (2.95 in.)	85 mm (3.35 in.)	77 mm (3.03 in.)
Stroke	80 mm (3.15 in.)	72 mm (2.83 in.)	100 mm (3.94 in.)	80 mm (3.15 in.)
Displacement	804 cc (49.1 cu. in.)	954 cc (58.2 cu. in.)	1134 cc (69.2 cu. in.)	1117 cc (68.2 cu. in.)
Compression Ratio	23:1	23:1	21:1	23:1
TUNE-UP				
Firing Order	2-1	1-2-3	2-1	1-2-3
Valve Clearance-Cold				
Intake	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Exhaust	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)
Valve Face Angle	45°			
Valve Seat Angle	45°			
Injection Timing, Static-BTDC	23°-24°	20°-21°	23°-24°	22°
Injector Opening Pressure	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)	11760 kPa (1705 psi)
Governed Speeds-Engine Rpm				
Low Idle	750-850	750-850	750-850	750-850
High Idle (No Load)	2900-2950	2950-3000	2650-2700	3000-3050
Rated (Full Load)	2700	2800	2500	2800
Power Rating at Pto Shaft	10 kW (13.5 hp)	12.3 kW (16.5 hp)	12.7 kW (17 hp)	14.7 kW (19.7 hp)
Battery				
Volts	12			
Ground Polarity	Negative			
CAPACITIES				
Cooling System	4.0 L (4.2 U.S. qt.)	2.7 L (2.8 U.S. qt.)	5.3 L (5.6 U.S. qt.)	3.0 L (3.2 U.S. qt.)
Crankcase*	4.3 L (4.5 U.S. qt.)	3.8 L (4.0 U.S. qt.)	4.3 L (4.5 U.S. qt.)	4.0 L (4.2 U.S. qt.)
Fuel Tank	22 L (5.8 U.S. gal.)	26.6 L (7 U.S. gal.)	22 L (5.8 U.S. gal.)	26.6 L (7 U.S. gal.)
Transmission, Rear Axle & Hydraulic System	20 L (21 U.S. qt.)	18 L (19 U.S. qt.)	20 L (21 U.S. qt.)	18 L (19 U.S. qt.)
Front Axle Differential Case	1.5 L (1.6 U.S. qt.)	2.4 L (2.5 U.S. qt.)	2.4 L (2.5 U.S. qt.)	2.4 L (2.5 U.S. qt.)
Front Axle Reduction Case (Each)	0.18 L (0.19 U.S. qt.)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)
*With filter change.				
SPECIAL TORQUES				
Connecting Rod Caps	25-28 N·m (18-20 ft.-lbs.)	30-34 N·m (22-25 ft.-lbs.)	80-85 N·m (59-63 ft.-lbs.)	25-27 N·m (18-20 ft.-lbs.)
Main Bearing Holders	....	25-29 N·m (18-22 ft.-lbs.)	....	48-53 N·m (36-39 ft.-lbs.)
Crankshaft Rear Plate	46-54 N·m (34-40 ft.-lbs.)	27-33 N·m (20-24 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)
Flywheel	343-441 N·m (253-325 ft.-lbs.)	59-69 N·m (44-50 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	59-69 N·m (44-50 ft.-lbs.)

CONDENSED SERVICE DATA (CONT.)

	1300	1310	1500	1510
SPECIAL TORQUES (CONT.)				
Cylinder Head	150-155 N·m (110-114 ft.-lbs.)	48 N·m (35 ft.-lbs.)	150-155 N·m (110-114 ft.-lbs.)	↑
†61 N·m (45 ft.-lbs.) with 10 mm bolts; 95 N·m (70 ft.-lbs.) with 12 mm bolts.				

CONDENSED SERVICE DATA

	1700	1710	1900	1910	2110
GENERAL					
Engine Make			Shibura		
Engine Model	LE892	H843	LEM853	T853A	T854B
Number of Cylinders	2	3	3	3	4
Bore	90 mm (3.54 in.)	84 mm (3.31 in.)	85 mm (3.35 in.)	85 mm (3.35 in.)	85 mm (3.35 in.)
Stroke	100 mm (3.94 in.)	84 mm (3.31 in.)	84 mm (3.31 in.)	100 mm (3.94 in.)	100 mm (3.94 in.)
Displacement	1272 cc (77.7 cu. in.)	1396 cc (85.2 cu. in.)	1429 cc (87.2 cu. in.)	1702 cc (103.8 cu. in.)	2268 cc (138.4 cu. in.)
Compression Ratio	21:1	23:1	21:1	21:1	21:1
TUNE-UP					
Firing Order	2-1	1-2-3	1-2-3	1-2-3	1-3-4-2
Valve Clearance-Cold					
Intake	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.30 mm (0.012 in.)	0.30 mm (0.012 in.)
Exhaust	0.30 mm (0.012 in.)	0.20 mm (0.008 in.)	0.30 mm (0.012 in.)	0.30 mm (0.012 in.)	0.30 mm (0.012 in.)
Valve Face Angle			45°		
Valve Seat Angle			45°		
Injection Timing					
Static-BTDC	20°-22°	22½°-23½°	26°-27°	23½°-24½°	23½°-24½°
Injector Opening Pressure			11760 kPa (1705 psi)		
Governed Speeds-Engine Rpm					
Low Idle	750-850	750-850	750-850	750-850	750-850
High Idle (No Load)	2600-2650	2825-2875	2900-2950	2650-2700	2650-2700
Rated (Full Load)	2500	2700	2800	2500	2500
Power Rating at Pto					
Shaft	17.4 kW (23.3 hp)	17.8 kW (23.9 hp)	20 kW (26.9 hp)	21.3 kW (28.6 hp)	25.9 kW (34.8 hp)
Battery					
Volts			12		
Ground Polarity			Negative		
CAPACITIES					
Cooling System	5.3 L (5.6 U.S. qt.)	5.5 L (5.8 U.S. qt.)	6.8 L (7.2 U.S. qt.)	7.0 L (7.4 U.S. qt.)	8.5 L (9.1 U.S. qt.)
Crankcase*	5.0 L** (5.3 U.S. qt.)	5.3 L (5.6 U.S. qt.)	5.5 L (5.8 U.S. qt.)	6.5 L (6.9 U.S. qt.)	7.5 L (7.9 U.S. qt.)
Fuel Tank	22 L (5.8 U.S. gal.)	29 L (7.6 U.S. gal.)	29 L (7.6 U.S. gal.)	35 L (9.3 U.S. gal.)	40 L (10.6 U.S. gal.)

CONDENSED SERVICE DATA (CONT.)

CAPACITIES (CONT.)	1700	1710	1900	1910	2110
Transmission, Rear Axle & Hydraulic System	22 L (23.2 U.S. qt.)	18 L (19 U.S. qt.)	24 L (25.4 U.S. qt.)	28 L (29.6 U.S. qt.)	32.2 L (34 U.S. qt.)
Rear Axle Final Drive Case (Each)	.....	2.4 L (2.5 U.S. qt.)	.....	.....	.....
Front Axle Differential Case	2.4 L (2.5 U.S. qt.)	3.3 L (3.5 U.S. qt.)	2.4 L (2.5 U.S. qt.)	4.2 L (4.5 U.S. qt.)	5.2 L (5.5 U.S. qt.)
Front Axle Reduction Case (Each)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)	0.22 L (0.23 U.S. qt.)

* With filter change.

** Crankcase capacity is 0.5 L (0.53 U.S. quarts) less when equipped with front wheel drive.

SPECIAL TORQUES

Connecting Rod Caps	80-85 N·m (59-63 ft.-lbs.)	45-50 N·m (32-36 ft.-lbs.)	45-50 N·m (32-36 ft.-lbs.)	78-83 N·m (58-62 ft.-lbs.)	78-83 N·m (58-62 ft.-lbs.)
Main Bearing Holders	.....	48-53 N·m (36-39 ft.-lbs.)	71-81 N·m (52-60 ft.-lbs.)	71-81 N·m (52-60 ft.-lbs.)	71-81 N·m (52-60 ft.-lbs.)
Crankshaft Rear Plate	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)	46-54 N·m (34-40 ft.-lbs.)
Crankshaft Pulley	49-59 N·m (36-43 ft.-lbs.)	49-59 N·m (36-43 ft.-lbs.)	49-59 N·m (36-43 ft.-lbs.)	49-59 N·m (36-43 ft.-lbs.)	49-59 N·m (36-43 ft.-lbs.)
Flywheel	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)	343-441 N·m (253-325 ft.-lbs.)
Cylinder Head	150-155 N·m (110-114 ft.-lbs.)	Note 1	Note 2	95 N·m (70 ft.-lbs.)	95 N·m (70 ft.-lbs.)

Note 1: 61 N·m (45 ft.-lbs.) with 10 mm bolts; 129 N·m (95 ft.-lbs.) with 14 mm bolts.

Note 2: 150-155 N·m (110-114 ft.-lbs.) for 11 large nuts and 58-62 N·m (43-46 ft.-lbs.) for 6 small nuts.

FRONT AXLE AND STEERING SYSTEM

FRONT AXLE (TWO WHEEL DRIVE)

All Models So Equipped

1. The front axle may be fixed tread width type or adjustable type for 1100, 1110, 1200, 1210, 1300, 1310, 1500 and 1510 models as shown in Figs. 1, 2 and 3. The adjustable axle used on 1700, 1710, 1900 and 1910 models is shown in Fig. 4. Adjustable axle used on 1710 Offset tractor is shown in Fig. 5, and adjustable axle used on 2110 tractor is shown in Fig. 6.

Front wheel toe-in is set by adjusting the length of the tie rod. Toe-in should be 0-5 mm (0-3/16 inch) on all models.

Clearance between axle pivot shaft and bushings (26—Figs. 1, 2, 3, 4, 5 and 6) should be 0.02-0.15 mm (0.001-0.006 inch). Bushings should be renewed if clearance exceeds 0.30 mm (0.012 inch).

Fig. 1—Exploded view of fixed tread front axle assembly used on two wheel drive 1100, 1110, 1200 and 1210 models.

1. Front wheel hub outer half
2. Nut
3. Outer bearing
4. "O" ring
5. Collar
6. Inner bearing
7. Seal
8. Seal
9. Wheel hub inner half
10. Spacer
11. Spindle
12. Oil seal
13. Bearing washers
14. Needle thrust bearing
15. Bushings
16. Axle
17. "O" ring
18. Washer
19. Steering arm
20. Cotter pin
21. Castellated nut
22. Washer
23. Washer
24. Shim
25. Shim
26. Bushing
27. Pivot shaft

