SPECIAL INSTRUCTIONS FOR CONVERSION OF MODEL L TRACTOR

FROM OLD STYLE LUBRICATION TO NEW HIGH-VOLUME SYSTEM

The new lubrication system is designed to:

1. Furnish oil to the engine at the same pressure as the present system.

2. Double the VOLUME of oil

3. Full-flow filter ALL oil reaching engine

4. Cut the time between engine starting and full lubrication of all bearings to less than 1/4 of the time with old style oil pump.

5. Cut the engine temperature by approximately 1/3.

The advantages are: Clean oil to engine at all times, longer life for the engine and bearings, more efficient operation. A subsidiary effect seems to be a fractional increase in horsepower due to lower operating temperature and more efficient lubrication.

This conversion consists of the following:

1. Oil Pump changeover.
2. Oil Filter Changeover. (Full-Flow)
3. Relief Valve Changeover.
4. Oil Strainer Changeover.
5. Valve Cover Changeover (on separate instruction sheet).

INSTALLATION INSTRUCTIONS FOR CONVERSION.

It is important to follow, carefully and accurately, these step-by-step instructions.

(1) Remove Fan Drive Pulley and Key (or Starter Pulley)

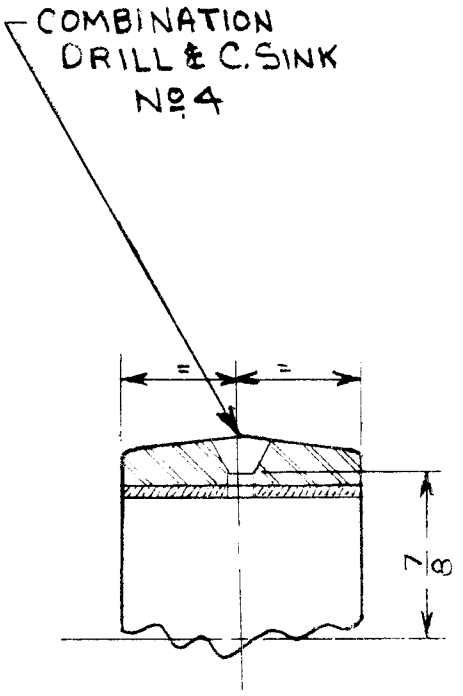
(2) Remove ALL oil lines and fittings, the Relief Valve, Oil Filter, Oil Filter Mounting Bracket. Do not discard, as some of the fittings are re-usable.

(3) Remove L-103 Oil Pump Cap and L-125 Gasket, L-422 Idler Gear and L-423 Oil Pump Stud.

(4) Remove Cylinder.

(5) Disassemble Crankcase.

(6) Disassemble Crankshaft and replace L-306 Connecting Rod with L-863 Connecting Rod. (Or: Drill escape hole 1/8" (#4 Drill and Counter sink) in bottom of large end of L-306 Connecting Rod. (See sketch) BE SURE ALL BURRS ARE REMOVED FROM INSIDE OF BUSHING AFTER DRILLING.



SECTION B-B

DRILL HOLE IN LARGE END FOR L-863 ONLY REAM AFTER DRILLING

NOTE: L-863 Connecting Rod is not included in the factory lubrication changeover kits, and should be ordered separately, if the L-306 Connecting Rod is not usable by conversion.

(7) Reassemble Crankshaft, taking care to align properly.

(8) Now tap the 1/4" dowel hole in Crankcase to 5/16" - 18. Then drill the NEW L-850 Bearing and Pump Body, in the bottom hole, with a 21-64" drill to accommodate the 5/16" hex head bolt (154-S), drilling all the way through the body. (See Number 5 , Plate 1).

(9) Remove all parts of old oil pump, replacing the assembly as follows:

L-423	Oil Pump Idler Gear Stud,	REPLACE WITH L-855
L-420-B	Oil Pump Bushing	(Replace if worn)
L-421	Oil Pump Master Gear	REPLACE WITH L-853
L-422	Oil Pump Idler Gear,	REPLACE WITH L-854
Assemble NEW L-125 Gasket		(Do not reuse old L-125 Gasket)
L-103 Bearing and Pump Cap,		REPLACE WITH L-850 Bearing and Pump Body, using 4 (164-S) bolts.

Assemble L-851 Pump Cap to Pump Body, using the L-852 gasket, using bolts as follows: three 165-S bolts; two 185-S bolts; and one 154-S bolt. (see plate 1)

(10) Reassemble Oil Pump Drive Gear & Woodruff Key (Numbers L-419-A and 507-K)

(11) AT THIS POINT, IT IS DESIRABLE TO ASSEMBLE THE NEW VALVE COVERS. IF YOU ARE INSTALLING THE VALVE COVERS, INSTALL NOW. (See separate instructions)

(12) Reassemble Crankcase and Cylinder.

(13) Remove old oil strainer body and all fittings, and replace as follows:

L-822 Oil Strainer Body:	REPLACE WITH L-868
L-823 Oil Strainer Nut: (If leakage occurs, use L-823-A copper gasket)	REPLACE WITH 227-N

NOTE: L-868 Oil Strainer Body should lie firmly against the bottom of Chassis, but without distortion or force.

(14) Reassemble L-814-F Pump Supply Elbow to L-868 Oil Strainer Body.

(15) Inlet and Outlet Ports on CRANKCASE (in Pump Boss) must be plugged with 1/8" pipe Plugs. (701-P)

(16) Insert L-707 Discharge Connection and L-814-A Pump Supply Connection in L-850 Bearing and Pump Body. (See Plate 1)

(17) Assemble L-813-A Pump Supply line to L-814-F and L-814-A.

(18) Assemble L-858 Oil Filter Bracket to Chassis Mounting Pad, using two 185-S Bolts and two 303-W lockwashers. See Plate 2

(19) Plug two holes in Chassis (remaining from mounting bolt of old style Oil Filter Bracket) with 165-S Filter Bracket Bolts.

(20) Assemble Relief Valve as follows:

(a) L-856 Relief Valve Body replaces L-815-A.
(b) Insert Relief Valve Spring L-815-C in body.
(c) Insert 1/4" diameter steel ball (L-865) (Replaces L-815-B Relief Valve Plunger)

(d) Insert L-707 Relief Valve Connector

(21) Assemble Complete Relief Valve to Chassis.

NOTE: IT IS OF CRITICAL IMPORTANCE TO USE THE NEW TYPE RELIEF VALVE AS ASSEMBLED IN STEP (20) WITH THE NEW SYSTEM. DO NOT ATTEMPT TO USE OLD RELIEF VALVE WITH NEW SYSTEM OR YOU WILL OIL STARVE THE ENGINE.

(22) Insert into L-858 Oil Filter Bracket:

(a) Into INLET Port: L-867 Oil Gauge Adaptor and L-866 Oil Gauge. (Note: Illustrations show assembly WITHOUT Oil Gauge)

(b) If Oil Pressure Gauge is not used, Insert L-814-D Connector directly into the INLET port of L-858 Oil Filter Bracket.

(c) Into OUTLET Port, L-814-C Discharge Line Tee.

See Plate 3

(23) Assemble L-859 Pump-to-Filter Line. (Replaces L-813-E)

(24) Assemble L-861 Filter-to-Relief Valve Line. (Replaces L-813-C)

(25) Assemble L-814-D Connector to Crankcase.

(26) Assemble L-860 Filter-to-Engine Line. (Replaces L-813-F.)

See Plate 4

(27) Put light film of oil on rubber seal of L-857 Full Flow Oil Filter, and screw onto Oil Filter Bracket. Follow directions on the Oil Filter itself for proper tension.

(28) Remove the L-211 Oil Filler Neck from the Chassis Casting. (Use Chisel. This part will be damaged in the removal, and must be discarded). Insert the L-864 Oil Filler Neck Baffle in the Oil Filler Hole in the Chassis. Then insert a new L-211 Oil Filler Neck. See Plate 5

This is desirable because the high volume of oil being circulated splashes over the filler opening in volume, when the filler cap is removed while engine is operating.

(29) Reassemble Fan Drive Pulley or Starter Pulley, Check all lines and connections.

(30) Fill, or refill to proper level, the Chassis with oil. Then start engine, observe for leaks and proper connections.

(31) When Engine has warmed up, observe the oil pressure gauge. The L-707 fitting in the Relief Valve acts as a pressure regulator. To increase the oil pressure, turn the body of the fitting (NOT the nut) toward the Magneto. To decrease the oil pressure, turn the fitting toward the Oil Filter. (See Plate 2, Photo No. 11)

Adjust the fitting until the indicator in the Oil Pressure Gauge stands halfway in the NORMAL segment of the dial.

Parts and Price List

		List Price of New Style-FOB Dunbar	In Field Change-over Kit
1.	OIL PUMP & RELIEF VALVE CHANGEOVER	$8.97	Kit (without Conn Rod)
1	Conn. Rod	4.43	Drill in Field
1	Bearing & Pump Body	3.48	L-850
1	Oil Pump Idler Gear Stud	.13	L-855
1	Oil Pump Master Gear	2.45	L-853
1	Oil Pump Idler Gear	.98	L-854
1	Bearing & Pump Body Gasket	.04	L-125
1	Pump Cap	.40	L-851
1	Pump Cap Gasket	.04	L-852
3	Pump Cap to Body Bolts, 1/4 x 1/2	.02	165-S
2	Pump Cap to Body Bolts, 1/4 x 1-1/4	.07	185-S
1	Pump Cap to Body Bolt, 5/16 x 1-3/8	.06	154-S
2	Pipe Plugs	.07	701-P
1	Relief Valve Body	.67	L-856
1	Relief Valve Ball	.03	L-865
1	Oil Filler Neck Baffle	.10	L-864
1	Oil Filler Neck	.19	L-211
2.	OIL FILTER CHANGEOVER	$5.05 Kit	
1	Oil Filter Bracket	1.75	L-858
2	Oil Filter Bracket Bolts, to chassis	.07	185-S
1	Pump to Filter Oil Line	.22	L-859
1	Filter to Relief Valve Oil Line	.22	L-861
1	Filter to Engine Oil Line	.22	L-860
1	Oil Filter	2.60	L-857
3.	OIL PRESSURE GAUGE CHANGEOVER	$3.00	
1	Oil Gauge Adaptor, Part L-867	.50	L-867
1	Oil Pressure Gauge, Part L-866	2.50	L-866
4.	OIL STRAINER CHANGEOVER	$1.98 Kit	
1	Oil Strainer Body	1.75	L-868
1	Oil Strainer Nut	.23	227-N
	Optional Oil Strainer Nut Copper Gasket	.04	L-823-A
5.	VALVE COVER CHANGEOVER	$4.62 Kit	
2	Valve Guides	.60	L-881
2	Valve Covers	1.00	L-875
2	Valve Tappett Screws	.20	L-880
2	Valve Spring Locator Sleeves	.10	L-882
2	Lower Cover Gaskets (Sleeve Gasket)	.10	L-877
2	Upper Cover Gaskets	.10	L-876
2	Valve Cover Caps	.10	L-878
2	Valve Cover Cap Gaskets	.05	L-879
4	Valve Cover Cap Screws	.02	101-S
4	Valve Cover Cap Screw Lockwashers	.01	310-W

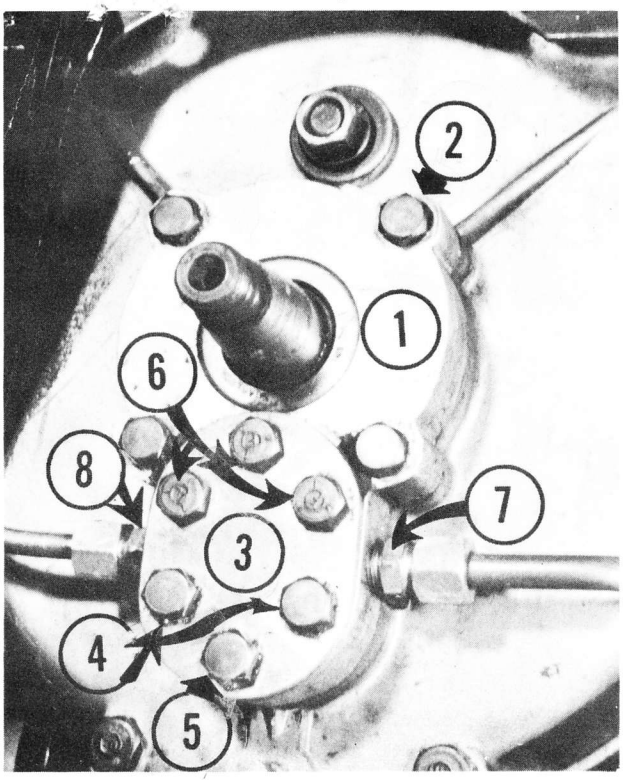


Plate 1

1. L-850 Bearing & Pump Body
2. 164-S (4 required)
3. L-851 Pump Cap
4. 184-S (5.) 154-S (6.) 165-S (2)
7. L-814-A Pump Supply Connection
8. L-707 Discharge Connection

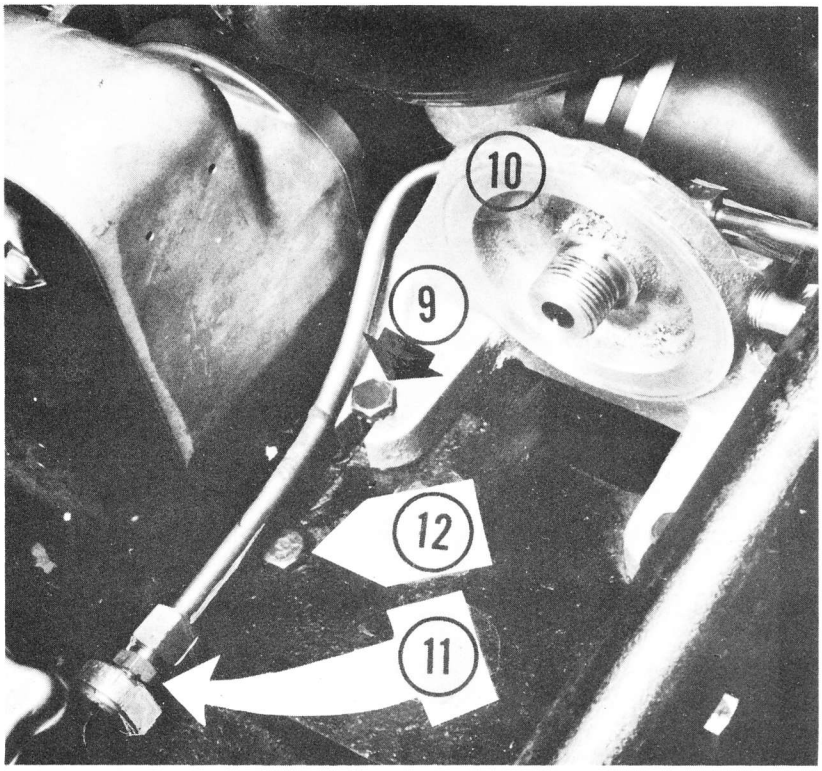


Plate 2

9. 185-S Bolt & 303-W Lockwasher (2 each required)
10. L-858 Oil Filter Bracket
11. L-707 Fitting (Acts as pressure regulator)
12. 165-S Bolt (To plug Chassis hole)

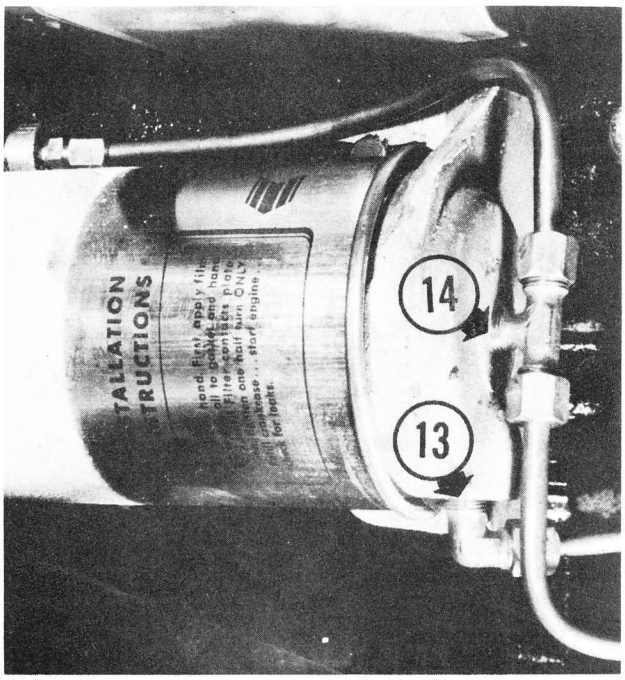


Plate 3

13. L-814-D Connector (For Pump to Filter Line) (Alternate L-867 Oil Gauge Adapter to L-866 Oil Gauge)
14. L-814-C Discharge Line Tee: (For Filter-to-Engine and Filter to Relief Valve Lines.)

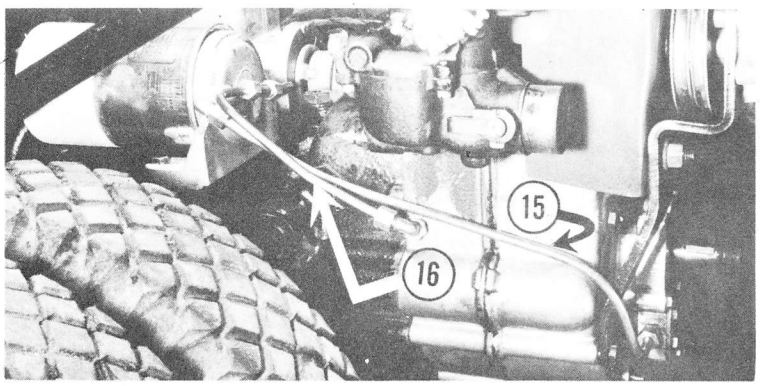


Plate 4

15. L-859 Pump-to Filter Line
16. L-860 Filter-to Engine Line

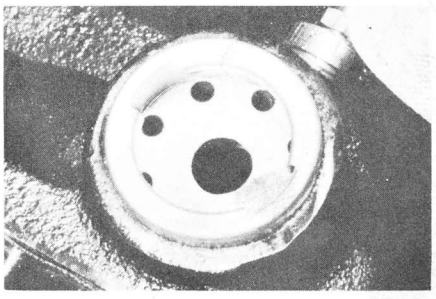


Plate 5

L-864 Oil Filter Neck Baffle, shown installed.