FOREWORD


It is material very valuable when needed and as this is the last revision that will be made of this section, you should retain this book in your permanent file.

For information listed in the index for this section referring to "General" and "Fuel Injection System" refer to those sections in your loose leaf Farm Equipment Service Manual.

This book, like the material in loose leaf Farm Equipment Service Manual "Knowledge Means Power", is printed for the exclusive use of Allis-Chalmers Dealers in servicing and maintaining farm equipment manufactured by Allis-Chalmers.
# D-15 TRACTORS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline Engine Section</td>
<td>3-34</td>
</tr>
<tr>
<td>Diesel Engine Section</td>
<td>35-73</td>
</tr>
<tr>
<td>Tractor Section</td>
<td>74-163</td>
</tr>
</tbody>
</table>

**Supplement No. 35**

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D-15

1

Supplement No. 35
INDEX
Gasoline Tractor

BEARINGS (Main) ........................................ 19
BEARINGS (Connecting Rod) ............. 18
CAMSHAFT .................................................. 13
CARBURETOR ............................................... 30
CONNECTING RODS ....................................... 15
CRANKSHAFT ............................................... 19
CRANKSHAFT FRONT OIL SEAL ............. 20
CRANKSHAFT REAR OIL SEAL .............. 21
CYLINDER HEAD .......................................... 17
CYLINDER LINER .......................................... 28
DISTRIBUTOR .................................................. 8
ENGINE .................................................... 6
FLYWHEEL ................................................... 22
GOVERNOR .................................................. 25
OILING SYSTEM .......................................... 15
OIL PUMP ................................................ 24
PISTONS .................................................. 23
ROCKER ARMS & SHAFTS ....................... 7
SPECIFICATIONS ....................................... 4-5B
THERMOSTAT AND HOUSING ..................... 34
TIMING GEAR COVER ................................. 12
VALVE GUIDES ........................................... 11
VALVE SPRINGS .......................................... 11
VALVE TAPPETS .......................................... 11
VALVE TIMING ........................................... 11
VALVES .................................................. 9
WATER PUMP ............................................. 33
ENGINE SPECIFICATIONS (Cont'd.)

**VALVE TIMING**

Intake Opens: 60° A. T. D. C.
Intake Closes: 360° A. T. D. C.
Exhaust Opens: 310° 15 min. B. B. D. C.
Exhaust Closes: 80° 45 min. A. T. D. C.

**CARBURETOR**

Make: Marvel Schebler
Model: TSX844
Float Valve Hole dia.: .081"
Venturi Inside dia.: 3/4"
Main Jet Flow Per Min.: 300 CC
Main Jet Adjustment: Approx. 2-7/16
Idler Jet (No. 71 Drill): .026"
Economizer Jet (Hole Dia.): .052"
Idler Jet Adj. (approx.): 1-9/16 turns open
Float Level: 1/4" from gasket face to float

**AIR CLEANER**

Make: Donaldson
Fill to mark on cup
Use same viscosity oil as used in the engine at prevailing temperatures

**SPARK PLUGS**

Thread Size: 14 M. M.
Thread Reach: 3/8"
Point Gap: .025"
Heat Range - Heavy Loads
A-C: 45
Autolite: A-7
Champion: J-8
Heat Range - Medium to Light Loads
A-C: 47
Autolite: A-9
Champion: J-11
For L. P. G. Fuel
Heat Range: Champion - J3
Point Gap: .018"-.022"

**THERMOSTAT**

Type: By-Pass Pallet

**DISTRIBUTOR**

Make: Delco-Remy
Model: 1112607
Point Gap: .022"
Rotor Rotation: Clockwise
Advance: Automatic Centrifugal
25° B. T. D. C. at 1750 R. P. M.

**GENERATOR**

Make: Delco-Remy
Model: 1100305
Type: 2 Brush
Volts: 12 V
Capacity: 25 Amperes
Charging Rate: Controlled by Volt. Reg.

**REGULATOR**

Make: Delco-Remy
Model: 1118993
Volts: 12 V
Regulator adjusted to 14.2 Volts Max.

**STARTING MOTOR**

Make: Delco-Remy
Model: 1107758
CONNECTING RODS & PISTONS

**REMOVAL**

Remove hood, valve cover, rocker arm shaft assembly and push rods. Drain cooling system and remove radiator shell and radiator. Drain crankcase oil and remove oil sump. Instructions for removing the various items will be found under the subject headings for each item to be removed.

Remove any carbon on top of cylinder liner, so that piston and rings may slide out of liner. Remove the oil pump intake floating screen. Remove one rod bearing at a time and push rod and piston assembly upward from top of cylinder liner. Install the rod cap to rod with the bearing notches both on the same side of rod.

When installing connecting rod and piston assemblies, the piston pin must be centered in piston and the rod centered on piston pin. Tighten the pin clamp capscrew 35 to 40 ft. lbs. torque. Install connecting rods to crankshaft with short side of rod bearing toward the nearest main bearing. Tighten the connecting rod cap nuts 35 to 40 ft. lbs. torque. Tighten the pal nuts 40 to 60 inch lbs. torque.

**PISTONS**

To remove pistons, refer to removal of connecting rods and pistons. To remove piston from connecting rod, place a punch in vise, place piston pin over punch and loosen the piston pin clamp capscrew. Push or drive pin from rod and piston.

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The piston is made from cast aluminum and is cam ground .0085" to .0095". The skirt large diameter is 3.497" at 90° of piston pin bore. The skirt diameter (small) is 3.485" at sides in line with piston pin bore. The piston skirt is tapered, and will measure .0005" to .0015" smaller at top than at bottom. All measurements must be taken at bottom of skirt. All dimensions are for new parts.

The three top compression ring grooves are .1255" to .1256" wide. The fourth oil ring groove is .1875" to .189" wide. The skirt clearance with cylinder liner is .0015" to .003". The piston pin bore is .8139" to .8141".

**PISTON RINGS**

The three top compression rings are alike, and should have .009" to .014" end gap when installed.
## INDEX
### Diesel Tractor

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camshaft</td>
<td>47</td>
</tr>
<tr>
<td>Connecting Rods</td>
<td>48</td>
</tr>
<tr>
<td>Crankshaft</td>
<td>51</td>
</tr>
<tr>
<td>Crankshaft Oil Seal</td>
<td>52</td>
</tr>
<tr>
<td>Cylinder Head</td>
<td>45</td>
</tr>
<tr>
<td>Cylinder Liners</td>
<td>50</td>
</tr>
<tr>
<td>Engine Adaptor Plate</td>
<td>53</td>
</tr>
<tr>
<td>Engine (Removal &amp; Assembly)</td>
<td>43</td>
</tr>
<tr>
<td>Flywheel</td>
<td>54</td>
</tr>
<tr>
<td>Fuel Injection</td>
<td>73</td>
</tr>
<tr>
<td>Air or Energy Cell</td>
<td>72</td>
</tr>
<tr>
<td>Air Timing</td>
<td>68</td>
</tr>
<tr>
<td>Cam Ring</td>
<td>68</td>
</tr>
<tr>
<td>End Plate</td>
<td>69</td>
</tr>
<tr>
<td>Fuel Flow</td>
<td>62</td>
</tr>
<tr>
<td>Governor Linkage</td>
<td>70</td>
</tr>
<tr>
<td>Governor Weights</td>
<td>68</td>
</tr>
<tr>
<td>Nozzle &amp; Holder</td>
<td>72</td>
</tr>
<tr>
<td>Priming Pump</td>
<td>71</td>
</tr>
<tr>
<td>Rotor</td>
<td>67</td>
</tr>
<tr>
<td>Torque Screw</td>
<td>70</td>
</tr>
<tr>
<td>Torque Specifications</td>
<td>71</td>
</tr>
<tr>
<td>Transfer Pump</td>
<td>64</td>
</tr>
<tr>
<td>Transfer Pump Liner &amp; Blades</td>
<td>69</td>
</tr>
<tr>
<td>Oil Pressure Relief Valve</td>
<td>57</td>
</tr>
<tr>
<td>Oil Pump</td>
<td>55</td>
</tr>
<tr>
<td>Oil Sump</td>
<td>58</td>
</tr>
<tr>
<td>Oiling System</td>
<td>56</td>
</tr>
<tr>
<td>Piston &amp; Rings</td>
<td>49</td>
</tr>
<tr>
<td>Return Oil Circuit</td>
<td>63</td>
</tr>
<tr>
<td>Rocker Arms</td>
<td>44</td>
</tr>
<tr>
<td>Specifications, General</td>
<td>37 thru 42</td>
</tr>
<tr>
<td>Thermostat &amp; Housing</td>
<td>61</td>
</tr>
<tr>
<td>Timing Gear &amp; Cover</td>
<td>46</td>
</tr>
<tr>
<td>Water Pump</td>
<td>59, 60</td>
</tr>
</tbody>
</table>

D-15

Supplement No. 35
CONNECTING RODS

REMOVAL

Remove the cylinder head and oil sump. Remove the carbon at top of cylinder liner. Remove rod bearing cap and push rod and piston out of engine block. To remove the connecting rod from the piston, remove the piston pin retaining snap ring and slide pin from piston.

The connecting rods have a removable, precision bearing insert. The rod bearing clearance with new parts should be from 0.001" to 0.0036". Bearings must be replaced if clearance exceeds 0.006". Bearing clearance can easily be checked with Plasti-Gage, as no measuring of the material is necessary.

The rod side clearance should be from 0.003" to 0.009" with new parts. If the side clearance exceeds 0.015" the rod or crankshaft must be replaced. Check with measurements listed under specifications. All connecting rods must be checked for alignment before installing in engine. Tighten the rod bolts from 40 to 50 ft. lbs. torque.

The piston pin bushing is replaceable in rod, and should be replaced if clearance is 0.002". When pressing bushing into place be sure the oil hole in bushing is in alignment with drilling in rod. The bushing must then be honed from 1.0001" to 1.0006". A new piston pin should measure from 0.99955" to 0.99975". Pin to bushing clearance of new parts should be 0.0005" to 0.00035" at 70°F. Reaming does not provide a good finish for these tolerances.
PISTON AND RINGS

REMOVING RETAINING RING

REMOVING RINGS

CHECKING LAND TO RING CLEARANCE

FITTING PISTON RINGS

REMOVAL

Remove cylinder head and oil sump. Remove connecting rod bearing, caps and push connecting rod and piston assembly from engine. Remove the piston pin retaining snap rings and push the pin from piston. Remove piston from connecting rod.

The piston pin or piston should be replaced if the total wear exceeds .002". The piston pin bore is from .99985" to 1.00005", and the piston pin diameter from .99955" to .99975". The pin to piston clearance should be .0001" to .0005" with new parts at room temperature, 70°F. If the temperature is lower, it will be necessary to heat the pin evenly to assemble piston pin.

The piston has a .009" cam grind. The skirt diameter is 3.5573" to 3.5583" as measured at right angles with the piston pin at bottom of piston.

The piston ring end gap should be checked in cylinder liner before assembling on piston. The top chrome compression ring should have from .007" min. The second and third compression rings are "granoseal processed" and should have from .014" min. end gap. The fourth and fifth oil rings should have from .007" min. end gap.

The first, second and third compression rings should measure .1235" to .124" in width. The fourth and fifth oil rings should measure .182" to .187" in width.

The top compression ring groove width should be .127" to .128" wide, giving the ring .003" to .0045" clearance in groove. The second and third ring groove width should be .126" to .127", giving the rings .002" to .004" clearance in grooves. The fourth and fifth oil ring groove width should be .188" to .1895", giving the oil rings .0015" to .0035" clearance in grooves.

Install the compression rings with the word "Top" upward, toward top of piston. Install the oil rings with the scraper edges downward, toward bottom skirt of piston.
INDEX

BRAKES .................................................. 136
CLUTCH ADJUSTMENT ................................. 100
DIFFERENTIAL .......................................... 126
ENGINE CLUTCH SHAFT ............................... 105
FINAL DRIVE ........................................... 128
FRONT AXLE ............................................. 82
FRONT WHEELS .......................................... 80
GEAR SHIFT ............................................... 122
HOOD ...................................................... 78
HOLLOW SHAFT ......................................... 104
HYDRAULIC PUMP ........................................ 146
IDLER SHAFT ............................................ 109
INTERMEDIATE SHAFT ................................. 110
POWER DIRECTOR CLUTCH ........................... 112
POWER STEERING PUMP ............................... 96, 98
P.T.O. SHAFT ............................................ 107
RADIATOR .................................................. 79
SHUTTLE CLUTCH ....................................... 112
SPECIFICATIONS .............................. 77
SPOOL VALVE (1 or 3) ................................. 154
SPOOL VALVE (Oil Flow) ...................... 144
STEERING SHAFT ........................................ 94
TORQUE HOUSING ...................................... 103
TRANSMISSION .......................................... 117
PEDESTAL & SPINDLE ASSEMBLY (Continued)

Install the capscrew, lockwasher, flat washer and the proper amount of shims to obtain the correct bearing adjustment, and tighten capscrew securely. If bearing adjustment is too tight add shims and if too loose remove shims. Adjust to a free rolling fit without end play or binding.

To install the pedestal assembly to the front support housing, turn the steering wheel to the straight ahead position, or until the pin hole in the vertical steering shaft is straight crosswise with tractor. Install the pedestal assembly with the spindles in the straight ahead position. After splined coupling engages shaft, install and tighten capscrews. Torque capscrews from 70 to 75 ft. lbs. Install wheel hubs and wheels. Torque wheels to hubs from 75 to 80 ft. lbs.

ROLL SHIFT FRONT AXLE

REMOVAL

Attach hoist to front end of tractor. Remove the four capscrews attaching the axle support casting to the front support housing. Lift front of tractor with hoist far enough for steering arm to clear top of axle support casting, and drive the roll pin from the center steering arm. Pull steering arm from shaft.

Grasp the axle support casting, move forward and lift the support from axle assembly. Remove the capscrew and bushing from the rear axle pivot bracket and remove the axle assembly from tractor.

To replace the spindles or spindle bushings, remove the wheel and wheel hub. Remove the snap ring retaining spindle arm to shaft and remove arm and Hi-Pro key. Remove shaft from the spindle support assembly. The spindle bushings may now be pressed or driven from spindle support. To remove spindle support from axle assembly, remove bolt at outer end and stud from slot at front of axle and slide out the spindle support assembly from axle.

ASSEMBLY

Install the bushings in the spindle supports. Use a bushing driver and drive or press the bushings into place until flush with support. Place the two thrust washers on spindle shaft and install into spindle support. Shaft must not bind in bushings. Install the Hi-Pro key at top of spindle shaft. Install spindle arm and insert retaining snap ring. Install the spindle support assembly to the axle assembly and install capscrews and tighten securely. Install front wheel hubs and wheels.

To install the axle assembly to tractor, roll the axle assembly in place under tractor and install the capscrew and bushing in rear pivot bracket. Attach the center steering arm to steering shaft and drive in roll pin. Place the axle support casting in place at top of axle assembly. Lower tractor until front support housing is near the axle support casting, align holes, install and tighten capscrews.