



Service Bulletin

LOCATION Charles City
 SUBJECT 1950-T Tractor Specifications
 NUMBER 430 161
 DATE 9-29-67
 FILE A General Information

This bulletin contains 1950-T Tractor service specifications. For service of components not covered herein, refer to 1850-1950 Tractor Shop Manual 432 515.

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Service Department

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ENGINE SPECIFICATIONS

GENERAL

Engine Serial Number Location	<u>DIESEL</u>
	Right side of crankcase on alternator bracket mounting flange
Weight of Engine (Pounds)	975
Number of Cylinders	6
Firing Order	1-5-3-6-2-4
Bore	3-7/8
Stroke	4-3/8
Piston Displacement	310
Engine Speed (rpm)	
Low Idle	800
Rated	2400
High No Load	2650
Compression Ratio	16:1
Cranking Speed (rpm)	150
Compression Pressure at Cranking Speed (psi)	350
Allowable Compression Pressure Variation Between Cylinders	10% total
Engine Operating Temperature	155-212° F.

LUBRICATION

Type	Pressure			
Main Oil Gallery Pressure Relief Valve	Non-adjustable, spring-loaded, poppet-type			
Oil Filter Types	One full-flow and one bypass			
Recommended Oil	Refer to Operator's Manual			
Minimum Oil Pressure @ Engine Operating Temperature				
Main Gallery — Idle Speed	20 psi			
2400 RPM	35-50 psi			
Oil Change Period	100 hours			
Filter Change Period	Every oil change			
Crankcase Capacity — Without Filters	8 qts.			
With Filters	12-1/2 qts.			
	<u>Main Gallery Relief Valve</u>	<u>Full Flow Filter Relief Valve</u>	<u>Full Flow Filter Bypass Valve</u>	<u>Oil Cooler Bypass Valve</u>
Oil Pressure Relief or Bypass				
Valve Springs — Free Length	1.925	2.475	3-11/16 ± 1/8	1.800
Compressed Length	1-3/8" @ 5.5 lbs.	1-3/8" @ 6.6 lbs.	2-5/8" @ 4 lbs.	1-1/4" @ 1.1 lbs.
Color Code	Red	White	Black	Blue
Oil Pressure Relief or Bypass				
Valve Plunger Diameter	0.498-0.497	0.497-0.496	3/4 ± 0.003	0.497-0.496

CAMSHAFT

Material	Cast iron (proferal) with hardened cam lobes
End Play	Controlled by spring pressure and thrust button
Thrust Button Spring — Free Length	1-3/16
— Compressed Length	25/32 @ 15-1/2 - 18-1/2 lbs.
Type of Drive	Gear Driven
Method of Checking Misalignment	"V" Blocks
Maximum Misalignment	0.002
Cam Lift - Intake & Exhaust	0.302
Journal Diameters	1.7495-1.7485

CAMSHAFT BUSHING AND BORE

	<u>DIESEL</u>
Type	Steel back, lead base, tin plate
Bushing Bore	1.8755-1.8745
Bushing Inside Diameter	
Standard	1.7520-1.7515
Maximum	1.7560
Bushing Width	1"
Running Clearance	
Standard	0.002-0.0035
Maximum	0.005

CONNECTING RODS

Material	SAE 1045 steel (forging quality)
Rod Misalignment	None
Length from Center of Small End to Center of Large End	6.750-6.749
Connecting Rod Side Clearance	
Standard	0.0075-0.0135
Diameter of Piston Pin Bushing Bore	1.312-1.313
Diameter of Rod Bearing Bore	2.5885-2.5890
Weight Variation Between Lightest and Heaviest Rod in Set	1/4 oz.
Number of Connecting Rod Bolts	2
Bolt Size	3/8 - 24

CONNECTING ROD BEARINGS

Type	Replaceable shell, precision bearings
Material	Steel backed, copper-lead base, tin plate
Manner of Adjustment	None
Running Clearance	
Standard	0.0005-0.0015
Maximum	0.0025
Bearing Width	1.125-1.115
Undersize	0.003 0.020

CRANKSHAFT

Type	Dynamically balanced
Material	C1046 steel (forging quality)
End Play Controlled by	No. 5 main bearing
End Play	
Standard	0.0045-0.0095
Maximum	0.010
Number of Main Bearings	7
Main Bearing Journal Diameter	2.625-2.624
Connecting Rod Journal Diameter	2.4375-2.4365
Maximum Journal Out-of-Round or Taper	0.0003
Maximum Main Bearing Journal Length	
Front	1-3/4
2nd, 3rd, 4th and 6th	1.495-1.505
5th	1.5025-1.5045
7th	1.620-1.630
Maximum Connecting Rod Journal Length	1.375-1.379
Main Bearing Cap Bolt Size	5/8-11
Maximum Allowable Shaft Misalignment	0.002
Flywheel Mounting Flange Runout	0.001

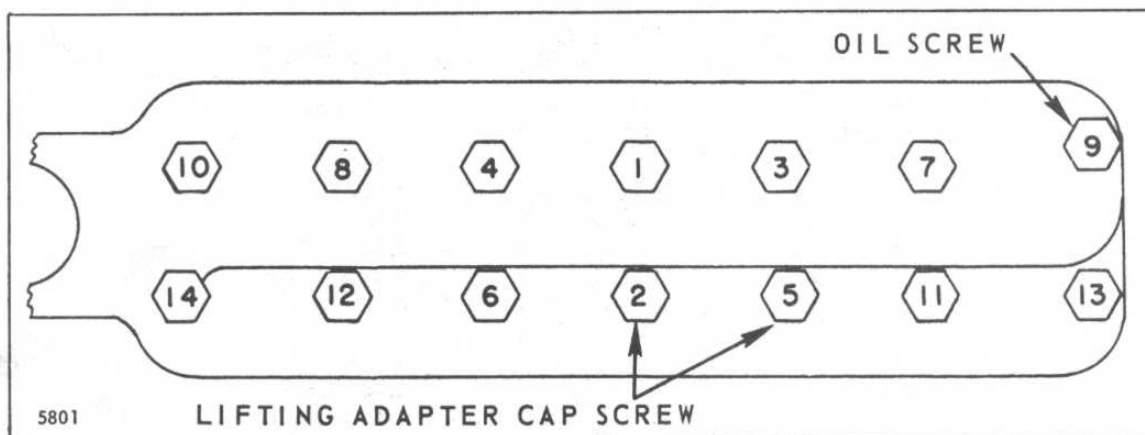
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CRANKSHAFT MAIN BEARINGS

	DIESEL
Type	Replaceable shell, precision
Material	Steel back, copper-lead base, lead-tin plate
Manner of Adjustment	None
Running Clearance	
Standard	0.0015-0.0045
Maximum	0.0065
Undersize	0.003
	0.020
Bearing Shell Width	1-1/4
Thrust Bearing Width	1.498-1.495
Crankcase Bore	2.8175-2.8165

CYLINDER HEAD

Type	Over head valve
Material	Cast alloy iron
Construction	One piece
Cap Screw Size	5/8 - 11
Number of Cap Screws	14
Maximum Cylinder Head Run-Out	0.005
Valve Port Diameters	
Intake	1-5/16
Exhaust	1-11/32
Valve Seat Angle	
Intake	30°
Exhaust	45°
Valve Seat Width	
Intake	0.087-0.097
Exhaust	0.062-0.072
Maximum Valve Seat Runout	0.002
Nozzle Bore Diameter	0.378-0.382



Cylinder Head Cap Screw Tightening Sequence

FLYWHEEL WITH RING GEAR

	DIESEL
Maximum Runout	0.005
Diameter	15.575-15.565
Ring Gear Teeth (Number)	123

IDLER GEAR

Shaft Diameter	1.000-0.999
Shaft Running Clearance	
Standard	0.0015-0.003
Maximum	0.005
Bushing Inside Diameter	1.0015-1.002
Plunger Spring	31/32 at 7-1/2 lbs † 1 lb.

OIL PUMP

Type	Gear
Relief Valve Setting	70 psi
Relief Valve Spring	
Free Length	1-15/16
Relief Valve Plunger Diameter	0.747-0.745
Drive Gear Clearance	
Standard	0.004
Maximum	0.008
Drive Shaft Running Clearance in Lower Bushing	
Standard	0.0015-0.004
Maximum	0.006
Drive Shaft Running Clearance in Upper Bushing	
Standard	0.0005-0.003
Maximum	0.045
Idler Gear Running Clearance	
Standard	0.0035-0.0045
Maximum	0.006

PISTONS

Material	Aluminum alloy
Surface Treatment	Tin plated
New Piston Fit in New Sleeves (Pull on Feeler Gauge)	3-6 lbs. on 1/2 x 0.002
Pistons Removed from	Top
Length	4.231-4.221
Skirt Diameter	3-7/8
Maximum Allowance Out-of-Round	Cam ground
Piston Ring Groove Width	
Top	0.125
2nd	0.0955-0.0965
Oil Ring	0.1880-0.1890
Piston Pin Bore Diameter	
Coded Red	1.2499-1.2500
Coded Blue	1.2501-1.2502