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.

INDEX (By Starting Paragraph)

Models 340, 350, 355, 360 and 399

BRAK	\mathbf{ES}
------	---------------

Adjustment –								
340 Models With Drum Brakes .						2	×.	253
Models With Disc Brakes Before								
Serial Number V39466		ų,				÷		254
Models With Disc Brakes After								
Serial Number V39465			•	٠	ł,			255
Disc Brake Assembly –								
All Models With Disc Brakes					ŝ	•		262
Drum Brake Assembly								
340 Models With Drum Brakes .			•	•				261
Fluid and Bleeding				•	÷	•	÷	256
Master Cylinders				•	÷	×		257
Slave Cylinders –								
340 Models With Drum Brakes .	×.							258
Models With Disc Brakes Before								
Serial Number V39466		+	•		÷			259
Models With Disc Brakes After								
Serial Number V39465			•	•	÷	•	•	260

CLUTCH (ENGINE)

Engine/Transmission Split		4	•	×			152
Linkage Adjustment					*		151
R&R and Overhaul–							
Models With Dual Clutch		4				÷.	153
Models With Split Torque Clutch	2			2			155

DIESEL FUEL SYSTEM

Bleeding						٠			20					133
Filters		e ,		+					×					131
Fuel Lift Pump .	8	2.5			1			2	4	3		÷	÷.	132
Injection Pump S	sp	ec	ifi	ca	ti	on	IS		2					145
Injector Nozzles							,			÷	•		R	134
Pump Drive Gea														
Pump Timing														

ELECTRICAL SYSTEM

Alternator and Regulator		÷		24				×		\mathbf{x}	147
Circuit Description	 		-	×.		-	e.	×	,		149
Starter				2	4						148
Wiring Diagrams											149

ENGINE (Three-Cylinders)

Cam Followers	\sim			•		•		1	41
Camshaft	×	a.			•				53
Connecting Rods and Bearings	×				•	•	,	×	57
Cooling System		24				•			64
Crankshaft and Bearings		5	4			•		×	58
Crankshaft Rear Oil Seal		5				÷	×.	2	59
Cylinder Head		4			÷	÷	÷	1	37
Flywheel			•	•					60
Front End/Engine Split									35

Models 340, 350, 355,

		360	ar	nd :	399
ENGINE (Three-Cylinders	s) (Cont.)				
Oil Pan			•		61
Oil Pump					62
Piston Pins					
Pistons, Rings and Sleeves .	4.545.8.8			• •	55
R & R Engine					36
Relief Valve					
Rocker Arms					
Rod and Piston Units					
Timing Gear Cover					
Timing Gear Housing					
Timing Gears					
Valve Clearance					
Valve Guides				$\sim \infty$	39
Valve Springs				1.2	40
Valve Timing					
Valves and Seats					

ENGINE (Six-Cylinder 6.3544)

Accessory/Injection Pump Drive
Cam Followers
Camshaft
Connecting Rods and Bearings
Cooling System
Crankshaft and Bearings 8'
Crankshaft Gear and Idler Gears 80
Crankshaft Pulley
Crankshaft Rear Oil Seal
Cylinder Head 69
Flywheel
Front End/Engine Split 6'
Oil Pan
Oil Pump
Piston Pins
Pistons, Rings and Sleeves
R & R Engine 68
Relief Valve
Rocker Arms
Rod and Piston Units
Timing Gear Housing
Timing Gears
Valve Clearance
Valve Guides
Valve Springs
Valves and Seats

ENGINE (Six-Cylinder 1006.6)

Cam Followers											÷			102
Camshaft									×	×				113
Connecting Rods	5 8	ın	d	Be	ea	ri	n	zs	×					117
Cooling System						4	4							124
Crankshaft and														

Models 340, 350, 355, 360 and 399

ENGINE (Six-Cylinder 1006.6) (Cont.)

Crankshaft Pulley				105
Crankshaft Rear Oil Seal				119
Cylinder Head				98
Flywheel				120
Front End/Engine Split	•	2		96
Oil Pan				121
Oil Pump				122
Piston Pins				116
Pistons, Rings and Sleeves				115
R & R Engine				97
Relief Valve				123
Rocker Arms				
Rod and Piston Units			÷	114
Timing Gear Cover and				
Front Oil Seal				106
Timing Gear Housing		2	ŝ	112
Timing Gears		<u>.</u>	2	108
Timing the Gears	2	2	с 	107
Valve Clearance	с. 	2	Ĵ	104
Valve Guides	2	Č.	Ĵ	100
Valve Springs			Ĵ	101
Valves and Seats		ļ	÷	99

FRONT AXLE SYSTEM (Two-Wheel-Drive Models)

Front Axle Assembly and Steering Linkage 1

FRONT-WHEEL DRIVE (Four-Wheel-Drive Models)

Differential -

Except "Hydralock"						•									e	13
"Hydralock"	•													•		15
Drive Shaft								8		÷						. 9
Front Drive Axle													4		2	10
Planetary Assembly																
Steering Knuckle Hou	si	n	g	a	nd	1	N	ıe	el	H	Iu	b				12
Track Rod and Toe-in																. 8
Tractor Split –																
Without Cab													4			17
With Cabs																18
Transfer Gearbox –																
Except Twelve-Spee	d	S	h	ut	tl	е										19
With Twelve-Speed	Sł	nu	it	tle	e !	Fr	ar	ıs	m	is	si	or	ı			20

HYDRAULIC SYSTEM

Auxiliary Hydraulic Pu	ın	ıp	•					•	ϵ	\mathbf{x}				293
Auxiliary Remote Cont	tro	ol '	Va	alv	/e	s	19			20				297
Auxiliary System Pres	su	re			×.			•			×.			294
Hydraulic Lift Pump .		•	•									ų,	a.	290
Lift Cover			\hat{v}			÷								285
Reservoir and Filters .														
Selector Valve														
Tests and Adjustments	ί.													277
Troubleshooting														276

Models 340, 350, 355, 360 and 399

INDEPENDENT POWER TAKE-OFF -

Hydraulic Pressure Tests273Left Side Cover and Control Valve270Output Shaft269Pto Clutch, Brake and Control Valve271Live Power Take-off262

MAIN DRIVE BEVEL DRIVE GEARS AND DIFFERENTIAL

Differential	and F	Bev	re]	F	Rin	ng	C	łe	aı		22				×	235
Differential																
Main Drive	Bevel	G	ea	rs	5	•		ł		•			÷			240

POWER TAKE-OFF

Live	•		•	•	•			x		 ¥.	•	4			263
Indep	er	nd	er	nt			•								267

REAR AXLE AND FINAL DRIVE

Drive Axle –					
340 Models With Direct Drive Axle					251
Models With Planetary Final Drive					252
Rear Axle Assembly –					
Early 340 Models With Drum Brake	s	•			242
340 Models With Disc Brakes			•		244
All Except 340 Models					246
Planetary Assembly –					
Models With Planetary Final Drive					247

STEERING SYSTEM

Filter and Bleeding	22
Power Cylinder –	
Two-Wheel-Drive With Three-Cylinder Engine	31
Two-Wheel-Drive With Six-Cylinder Engine .	32
Four-Wheel-Drive Models	33
Pump –	
Models With Separate Pump	27
Models With Tandem Pump	29
Steering Control Valve	34
System Pressure –	
With Separate Steering Pump	24
With Tandem Pump	25
Troubleshooting	23

TRANSMISSION (Six-Speed Shuttle)

Countershaft (Layshaft) and Gears	204
Lubrication	
Mainshaft (Output Shaft) and Gears	
Planetary Unit	
Pto Input Shaft and Retainer Housing	
Pto Lower Shaft Front Bearing and Retainer .	201
Reverse Idler Gear And Shaft	205
Shifter Rails and Forks	

Models 340, 350, 355, 360 and 399

TRANSMISSION (Six-Speed Shuttle) (Cont.)

Top Cover												•	•				197
Tractor Rear Sp	lit	•		,		÷			,	÷					•	×	195
Transmission Ir	nput	S	ha	ft	an	d	S	hι	itt	tle	2 (Ge	ea	rs			202
Transmission R	emo	va	ıl .		243									v.	k		196

TRANSMISSION (Eight-Speed Shuttle)

Countershaft (Layshaft) and Gears	. 216
Lubrication	
Mainshaft (Output Shaft) and Gears	
Planetary Unit	
Pto Input Shaft and Retainer Housing	
Pto Lower Shaft Front Bearing and Retainer	. 213
Reverse Idler Gear and Shaft	. 217
Shifter Rails and Forks	
Top Cover	
Tractor Rear Split	
Transmission Input Shaft	
Transmission Removal	

TRANSMISSION (Eight-Speed Standard)

Countershaft (Layshaft) and Gears			•					168
Lubrication					×			157
Mainshaft (Output Shaft) and Gear	s							167
Planetary Unit								163
Pto Input Shaft and Retainer Housi	in	g			\sim	÷	×	164
Pto Lower Shaft Front Bearing and	R	et	ai	n	er		4	165
Reverse Idler Gear and Shaft								169
Shifter Rails and Forks								
Top Cover and Shift Levers								
Tractor Rear Split								
Transmission Input Shaft								
Transmission Removal				e	÷			160

TRANSMISSION (Eight-Speed Synchromesh)

Countershaft (Layshaft) and Gears					÷	÷		180
Lubrication								170
Mainshaft (Output Shaft) and Gear	s			•			s	179
Planetary Unit	×			٠	÷	×		175
Pto Input Shaft and Retainer Housi	n	g				×		176
Pto Lower Shaft Front Bearing and	R	et	ai	in	er	8	a.	177
Reverse Idler Gear and Shaft		4				2		181
Shifter Rails and Forks	÷	a.			2		÷	174

Models 340, 350, 355, 360 and 399



TRANSMISSION (Eight-Speed

Synchromesh) (Cont.)

lop Cover .					• •		٠					÷	110
Tractor Rear	Split							•				÷.	171
Transmission													
Transmission	Rem	0	va	1					•	•	•	55	172

TRANSMISSION (Twelve-Speed Shuttle)

Forward/Reverse Shift Control Linkage	. 22	i
Lubrication	. 21	8
Main Gear Shift Lever and Selector Shaft		2
Main Transmission Countershaft and Gears	. 23	13
Main Transmission Input Shaft	. 23	1
Main Transmission Shift Rails and Forks	. 22	1
Main Transmission Upper Shaft and Gears .	. 23	12
Pto Input Shaft and Retainer Housing	. 22	20
Pto Lower Shaft Front Bearing and Retainer	. 23	3(
Range Change Lower Shaft	. 22	27
Range Change Unit Upper Shaft		1
Range Change Upper Shaft Bearing Preload	. 22	26
Range Selector Cam	. 22	28
Reverse Idler Gear and Shaft		34
Top Cover	. 22	2
Tractor Rear Split	. 21	(
Transmission Removal	. 22	2(

TRANSMISSION (Twelve-Speed

Synchromesh)

Countershaft (Layshaft) and Gears					÷	192
Lubrication					÷	182
Mainshaft (Output Shaft) and Gears						191
Planetary Unit						187
Pto Input Shaft and Retainer Housin						188
Pto Lower Shaft Front Bearing and F						189
Reverse Idler Gear and Shaft						193
Shifter Rails and Forks					*	186
Top Cover						185
Tractor Rear Split						183
Transmission Input Shaft						190
Transmission Removal						184
TURBOCHARGER (355 and 360 M	lo	de	ls	;)		

128 Operation

I													
Service		:		e.	÷	G,	2			3	24	à:	129