J.I. Case
Service Manual
VA Series
VA, VAS, VAI, VAH, VAO, VAC, VAC-14, & VAE Engine

THIS IS A MANUAL PRODUCED BY JENSALES INC. WITHOUT THE AUTHORIZATION OF J.I. CASE OR ITS SUCCESSORS. J.I. CASE AND ITS SUCCESSORS ARE NOT RESPONSIBLE FOR THE QUALITY OR ACCURACY OF THIS MANUAL.

TRADE MARKS AND TRADE NAMES CONTAINED AND USED HEREIN ARE THOSE OF OTHERS, AND ARE USED HEREIN IN A DESCRIPTIVE SENSE TO REFER TO THE PRODUCTS OF OTHERS.
<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Year Made</th>
<th>Plate Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>4600001</td>
<td>1942</td>
<td></td>
</tr>
<tr>
<td>4700001</td>
<td>1943</td>
<td></td>
</tr>
<tr>
<td>4800001</td>
<td>1944</td>
<td></td>
</tr>
<tr>
<td>4900001</td>
<td>1945</td>
<td></td>
</tr>
<tr>
<td>5000001</td>
<td>1946</td>
<td></td>
</tr>
<tr>
<td>5100001</td>
<td>1947</td>
<td></td>
</tr>
<tr>
<td>5200001</td>
<td>1948</td>
<td></td>
</tr>
<tr>
<td>5300001</td>
<td>1949</td>
<td></td>
</tr>
<tr>
<td>5400001</td>
<td>1950</td>
<td></td>
</tr>
<tr>
<td>5500001</td>
<td>1951</td>
<td></td>
</tr>
<tr>
<td>5600001</td>
<td>1952</td>
<td></td>
</tr>
<tr>
<td>5700001</td>
<td>1953</td>
<td></td>
</tr>
<tr>
<td>5800001</td>
<td>1954</td>
<td></td>
</tr>
<tr>
<td>5900001</td>
<td>1955</td>
<td></td>
</tr>
</tbody>
</table>

**PAINT VA, VAC, VAO, VAH**

<table>
<thead>
<tr>
<th>Color Application</th>
<th>MFG Color Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY</td>
<td>FLAMBEAU RED</td>
</tr>
<tr>
<td>RIMS</td>
<td>ALUMINUM</td>
</tr>
</tbody>
</table>

**PAINT FOR VAI**

<table>
<thead>
<tr>
<th>Color Application</th>
<th>MFG Color Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY</td>
<td>CASE IND. YELLOW</td>
</tr>
<tr>
<td>RIMS</td>
<td>ALUMINUM</td>
</tr>
</tbody>
</table>
VA Series
Tractor and Engine
Service Manual

Rac 258

CA-S-VA SERIES
GROUP I, GENERAL

SECTION A, INTRODUCTION

LIST OF CONTENTS

I GENERAL
   How To Use The Manual
   Tractor Models
   Tools (Service)
   Lubrication (General)
   Repair Parts Handling (Serial Numbers)

II ENGINE
   Splitting Tractor
   Service Hints
   Engine Overhaul Procedures
   Clutch
   Carburetion, Fuel and Governor
   Electrical System (Ignition)

III TORQUE TUBE
   Service Hints
   Clutch Throw-out
   Oil Reservoir and Filter
   Belt Pulley

IV TRANSMISSION
   Service Hints
   Splitting Tractor
   Transmission Overhaul
   Differential Assembly
   Turning Brakes

V REAR AXLE
   Service Hints
   Splitting Tractor
   Rear Axle (VA, VAC—VAO, VAI)
   Rear Axle (VAS, VAH)
   Power Take-Off Assembly

VI FRONT AXLE ASSEMBLY
   Service Hints
   Splitting Tractor
   Front Wheel Bearings
   Steering Knuckles & Spindles
   Steering Mechanism
   Sickle Grinder Attachment (VAI)

VII HYDRAULIC SYSTEMS
   Service Hints (Low-Pressure System)
   Oil Reservoir and Pump (Low-Pressure)
   Depth Control Unit and Eagle Hitch
   Single Control Valve
   Double Control Valve
   Portable Cylinders and Connections
   Combination Hydraulic Applications
   High Pressure Pump and System
GROUP I, GENERAL

SECTION A, INTRODUCTION

This manual has been prepared to aid your service department in the proper methods of overhauling and adjusting "VA" Series Tractors. Use this manual as a ready reference. Keep it in the shop and refer to it when service problems arise.

Each major part or assembly of the tractor is treated in a separate "Group". For instance, if the transmission is being overhauled, all necessary procedures, tolerances and torque tightness pertaining to the transmission and its assembly to the tractor will be found within this specific group.

"VA" Series Tractors have several units in common such as the engine, carburetor, cooling system, ignition system and clutch. However, some differences will be noted between steering gears, brakes, power-take-off and axle assemblies on certain "VA" Tractors. In order to provide complete service information, each group covers all service data pertinent to all models indicated.

Certain items such as sheet metal, seats, platforms, drawbars and wheel weights, are not touched upon in this manual as their use is rather obvious and maintenance extremely simple. Within each section a schematic diagram or exploded view of the assembly or unit is shown to aid the service man in proper sequence assembly of each unit. This illustration also serves as quick identification of the repair parts needed, which is shown in the same type view in the Case Parts Catalog.

Keep shop equipment clean, and maintain clean working methods. If possible, steam clean tractor before disassembling for overhaul. Be extremely careful to prevent dirt and dust from entering parts as they are assembled.
GROUP II, ENGINE

SECTION F, CYLINDER HEAD ASSEMBLY

When installing new guides, press into place so that guide extends 31/32 inch above counterbored surface of cylinder head as shown in Fig. F - 16.

After assembly, ream guides to .3432 -.3422 inches (Fig. F -16).

6. Coat head of valve with light coat of PrusionBlue.
7. Install valve to inspect for proper angle between valve seat and valve face.
8. A full, even contact around entire circle of seated valve is indication that angles match.
9. Correction must be made to valve seat if contact is uneven. Do not correct by changing valve face.

Both guides are reamed to the same dimensions and difference in clearance is obtained in valve stem diameters. Exhaust valves require greater clearance and therefore have a smaller stem.

When installing valves, coat valve stems and guides with a thin film of light oil.

Every new valve guide must be reamed to proper dimensions before valves are installed.

Albertson and Company of Sioux City, Iowa, who are the manufacturers of Sioux Tools, have prepared a folder containing valve data on Case Engines. This folder lists the Sioux Reamer available for reaming these guides to proper dimension.

REFACING VALVES
1. Maximum face run out must be held to .002 inch.
2. Maintain reasonable margin, Fig. F -17.
3. Face intake valves to 30°.
4. Face exhaust valves to 44°.
5. Remove only enough material to remove burned or pitted portion of face.
GROUP IV, TRANSMISSION

SECTION I, DIFFERENTIAL BRAKES

Fig. 1-13 Adjusting Brake Rod Length (Early VA0)

(h) Should brakes self energize or drag, check for clearance as outlined on page 1-3.

2. Tractors with considerable brake usage:

After a considerable amount of usage the brake lining may become worn and an excess amount of free travel in the foot pedal may be noticed. Adjust the brakes on models VAC, VA, VAI, VAS and VAH as follows:

(a) Disconnect the brake rod return springs.

(b) Disconnect the brake rod at the yoke end.

(c) Shorten the length of the brake rods evenly until approximately one inch of free pedal travel is noted when rods are attached to outer brake lever.

(d) Attach return springs and tighten jam nuts.

(e) Jack rear of tractor off the ground and check brakes with interlock in place to make certain the same action is obtained on both brakes. Lengthen or shorten rods until both wheels stop together.

Adjust the brakes on earlier style Model VA0 Tractors in the same fashion. The rods from “A” to “B”, Fig. 1-13, are adjusted for length in the same manner as described on page 1-4. Test brakes for return action when pedal is released.

When brake lining shows considerable wear the adjustable shoe end plate, Fig. 1-9, can be adjusted to a larger diameter position to obtain more satisfactory brake operation and additional usage from linings. Brake rod adjustment as described above must be made after end plate has been positioned.
GROUP VII, HYDRAULIC SYSTEMS

SECTION B, SERVICE HINTS

Implement Will Not Drop

1. Screws in actuating lever not properly adjusted
   1. Adjust
   1. Page D-15

Implement Will Not Raise

1. Screws in actuating lever not properly adjusted
   1. Adjust
   1. Page D-15
2. Pressure control valve not seating properly
   2. Re-seat
   2. Page D-12
3. Lack of pressure in pump
   3. Check pressure
   3. Page C-11
4. Relief valve by-passing
   4. Check pressure in system—load may be too heavy
   4. Page C-11

Implement Raises Too Slowly

1. Pressure Control Valve partially seated
   1. Re-seat valve. Check screw in actuating lever
   1. Pages D-12 and D-15
2. Oil too heavy
   2. See Specifications
   2. Page C-3
3. Engine speed too slow
   3. Check engine speed
   3. Page C-1

Control Arm Binds

1. Insufficient clearance for arm
   1. Add shims
   1. Page D-6

Howling Noise in Depth Control Unit

1. Relief Valve by-passing
   1. Inspect relief valve. Check load—may be too heavy
   1. Page C-11

Draft Arms Creep Up When Lever is in Neutral Position

1. Oil too heavy for existing temperature
   1. See Specifications
   1. Page C-3
2. Screws in actuating lever not properly adjusted
   2. Adjust screws
   2. Page D-15
3. "0" rings in pressure control valve leaking—pressure developed behind plunger
   3. Install new "0" rings. Install plunger with hole drilled for oil escape
   3. Page D-10