

Caterpillar 3304 78p1 Up Parts Manual

Full download: <http://manualplace.com/download/caterpillar-3304-78p1-up-parts-manual/>



**CATERPILLAR
PARTS
BOOK**

**3304
VEHICULAR
ENGINE**

**SERIAL
NUMBERS**

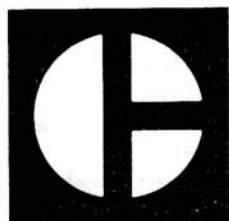
78P1-UP

This is the cut pages sample. Download all 249 page(s) at: ManualPlace.com

770
941-2550

CONTENTS

| | |
|---------------------------------|--------------------|
| ALPHABETICAL INDEX OF GROUPS... | 3 |
| CONVERSION EQUIVALENT TABLES | INSIDE BACK COVER |
| ORDERING PARTS..... | 2 |
| QUICK REFERENCE CHART | INSIDE FRONT COVER |
| USING THE PARTS BOOK..... | 2 |



PARTS BOOK

3304
VEHICULAR ENGINE

SERIAL NUMBER
78P1-UP

REVISION PUBLISHED AUGUST 1975
CATERPILLAR TRACTOR CO.
PUBLICATIONS DIV.—SERVICE G.O.
PEORIA, ILL. U.S.A.
COMPILED BY BETTY J. SCHMIDGALL

QUICK REFERENCE GUIDE TO MAJOR SECTIONS

CENTRAL STRUCTURE

UPPER STRUCTURE

FRONT STRUCTURE

REAR STRUCTURE

LOWER STRUCTURE

LUBRICATION SYSTEM

COOLING SYSTEM

INTAKE & EXHAUST SYSTEM

FUEL SYSTEM & GOVERNOR

ELECTRICAL SYSTEM

GASKET KITS

ORDERING PARTS

Quality Caterpillar Replacement parts are available from Caterpillar dealers throughout the world. Their parts stocks are up to date and include all parts normally required to protect your investment in Caterpillar machines.

When ordering parts, always use the Parts Book covering the serial number of your machine.

Your order should specify the quantity, part number, part name and show the machine serial number for which the parts are needed. If in doubt about the part number, please provide your dealer with a complete description of the needed item.

| | |
|--|--|
| ENGINE MODEL | |
| SERIAL NUMBER | |
| ○ GIVE ALL NUMBERS IN ALL COMMUNICATIONS ○ | |
| ARRANGEMENT NUMBER | |
| MODIFICATION NUMBER | |
| 313790 2 | |

Serial Number Plate is Located on L.H. side of cylinder block.

HOW TO USE THE PARTS BOOK

Caterpillar Parts Books include illustrations of the groups or assemblies which make up the machine. These illustrations show the standard components of the machine plus many of the attachments available for the machine.

The alphabetical index located in the front part of the book should be used to determine the page number on which specific illustrations are shown. Reference to those pages will identify each of the individual serviceable parts.

Captions

The caption under each illustration identifies the part number and name of the group or assembly shown. If more than one illustration is included for any group, the caption identifies the specific machine serial numbers to which each illustration applies. In some cases it is not possible to determine the specific machine serial numbers to which different illustrations are applicable. In those cases the caption identifies the illustration as "First Type", "Second Type", etc. Reference to the actual group or assembly is necessary in those cases to determine which illustration should be used.

Captions provide additional information such as page numbers where illustrations of sub assemblies are shown, information regarding quantities used and other information intended to assist the user in determining parts needs.

Indented Part Names

Within each illustration is a parts list identifying each serviceable part in the illustration. When a part name is indented in this list, it means that serviceable item is a part of the serviceable item under which it is indented.

Abbreviations and Symbols

- ▲ Used to call attention to additional information shown elsewhere within the illustration.
-
- R.H. Right Hand Refers to the side of the machine as viewed from the operator's compartment.
- L.H. Left Hand
- C Indicates changes from the previous illustration of the same group or assembly.
- O.D. Outside Diameter
- I.D. Inside Diameter
- N/S Not Serviced
- Assem. Assembly
- in. Inch
- ft Foot
- cm Centimeter
- dm Decimeter

Note:

Continuing improvement and advancement of product design may cause changes to your machine which may not be included in this publication. Each publication is reviewed and revised, as required, to update and include these changes in later editions.

Whenever a question arises regarding your Caterpillar product, or this publication, please consult your Caterpillar dealer for the latest available information.

INDEX

VEHICLE USAGE CHART IS SHOWN ON PAGE 11

ENGINE ARRANGEMENTS ARE LISTED STARTING ON PAGE 12

Central Structure (Page 24)

| Name | Page |
|-------------------------------|------|
| Balancer | 36 |
| Camshaft | 36 |
| Connecting Rod & Piston | 35 |
| Crankshaft | 27 |
| Crankshaft Bearings | 30 |
| Crankshaft Seal | 32 |
| Cylinder Block | 24 |
| Cylinder Block Cover | 24 |

Upper Structure (Page 37)

| | |
|------------------------------|----|
| Cylinder Head | 37 |
| Cylinder Head Fastener | 39 |
| Lifting Eye | 41 |
| Valve Mechanism | 40 |
| Valve Mechanism Cover | 40 |

Front Structure (Page 41)

| | |
|------------------------------|----|
| Crankshaft Hub | 57 |
| Fan Drive | 62 |
| Front Gear — Timing | 45 |
| Front Housing | 41 |
| Front Housing Cover | 42 |
| Front Housing Fastener | 44 |
| Pulley | 47 |
| Support | 58 |
| Trunnion | 46 |

Rear Structure (Page 63)

| | |
|----------------|----|
| Flywheel | 66 |
|----------------|----|

| Name | Page |
|------------------------------|------|
| Flywheel Housing | 62 |
| Flywheel Housing Cover | 65 |

Lower Structure (Page 68)

| | |
|------------------------|----|
| Oil Level Gauge | 70 |
| Oil Pan | 68 |
| Oil Pan Fastener | 69 |

Lubrication System (Page 71)

| | |
|----------------------|----|
| Breather | 80 |
| Fumes Disposal | 81 |
| Oil Filler | 79 |
| Oil Filter | 78 |
| Oil Lines | 75 |
| Oil Pump | 71 |

Cooling System (Page 83)

| | |
|-------------------------------|----|
| Engine Oil Cooler | 91 |
| Housing & Regulator | 86 |
| Transmission Oil Cooler | 90 |
| Water Lines | 83 |
| Water Lines — Elbow | 92 |
| Water Lines — Pipe | 91 |
| Water Pump | 84 |

Intake and Exhaust System (Page 93)

| | |
|----------------------|-----|
| Air Compressor | 112 |
|----------------------|-----|

| Name | Page |
|---------------------------------|------|
| Air Compressor Lines | 118 |
| Air Lines | 107 |
| Exhaust Manifold | 93 |
| Exhaust Manifold Fastener | 94 |
| Exhaust Pipe | 96 |
| Turbocharger | 99 |
| Turbocharger Oil Lines | 105 |

| Name | Page |
|---------------------------|------|
| Primary Fuel Filter | 125 |
| Service Meter | 122 |
| Service Meter Drive | 124 |
| Torque Control | 196 |

Fuel System and Governor (Page 120)

| | |
|--------------------------------------|-----|
| Accessory Drive | 120 |
| Fuel Filter | 125 |
| Fuel Injection Lines | 188 |
| Fuel Priming Pump | 128 |
| Fuel Transfer Pump | 135 |
| Governor Cover | 202 |
| Governor & Fuel Injection Pump | 139 |

Electrical System (Page 203)

| | |
|-------------------------------|-----|
| Alternator | 213 |
| Electric Starting Motor | 203 |
| Glow Plug | 213 |

Gasket Kits (Page 215)

| | |
|-------------------|-----|
| Gasket Kits | 215 |
|-------------------|-----|

INDEX ALPHABÉTIQUE

LES UTILISATIONS SUR VÉHICULES DE CE MOTEUR SONT INDIQUÉES
PAGE 11.

LES VERSIONS FOURNIES PAR LES USINES SONT INDIQUÉES PAGE 12.

Ensemble central (Page 24)

| Désignation | Page |
|-----------------------------------|------|
| Arbre à cames | 36 |
| Bielles et pistons | 35 |
| Bloc-cylindres | 24 |
| Bloc-cylindres (couvercles) | 24 |
| Coussinets de vilebrequin | 30 |
| Équilibreur dynamique | 36 |
| Joint de vilebrequin | 32 |
| Vilebrequin | 27 |

Ensemble supérieur (Page 37)

| | |
|-----------------------|----|
| Bride de levage | 41 |
|-----------------------|----|

| Désignation | Page |
|-------------------------------------|------|
| Culasse | 37 |
| Culasse (boulonnerie) | 39 |
| Soupapes (couvercles) | 40 |
| Soupapes et train de commande | 40 |

Ensemble avant (Page 41)

| | |
|---------------------------------------|----|
| Carter avant | 41 |
| Carter avant (boulonnerie) | 44 |
| Carter avant (couvercle) | 42 |
| Engrenage de distribution avant | 45 |
| Moyeu de vilebrequin | 57 |
| Poulie | 47 |
| Support | 58 |

| LISTED BELOW ARE MODELS USING 3304 ENGINE SERIAL NUMBER 78P1—UP AND VEHICLE SERIAL NUMBER RANGES WITH BASIC ENGINE ARRANGEMENT NUMBER INSTALLED ON EACH MODEL | | | |
|---|--|--|--|
| MODEL | VEHICLE SERIAL NO. | BASIC ENGINE ARRANGEMENT NO. | LISTED ON PAGE NO. |
| D4D TRACTOR | 82J3444 to 82J3650 82J3651—Up 83J2177 to 83J2564 83J2565—Up 84J1525 to 84J1612 84J1613—Up | 2P6778 4N3803 2P6775 4N3799 2P6781 4N3806 | 18 & 19 12 & 13 16 & 17 12 & 13 20 & 21 14 & 15 |
| 941B TRAXCAVATOR | 80H3884 to 80H4675 80H4676—Up | 2P6776 4N3801 | 16 & 17 12 & 13 |
| 951C TRAXCAVATOR | 86J2598—Up | 2P6779 | 18 & 19 |
| 955L TRAXCAVATOR | 85J6247 to 85J7633 85J7634—Up | 2P6783 4N3974 | 20 & 21 14 & 15 |
| 920 WHEEL LOADER | 62K4606 to 62K5678 62K5679—Up | 2P6777 4N3802 | 18 & 19 12 & 13 |
| 930 WHEEL LOADER | 41K3208 to 41K3797 41K3798—Up | 2P6782 4N3807 | 20 & 21 14 & 15 |
| 950 WHEEL LOADER | 81J5411 to 81J6604 31K1201 to 31K1337 81J6605—Up 31K1338—Up | 2P6785 4N3975 | 22 & 23 14 & 15 |
| 950 TREE HARVESTER | 49U238—Up | 2P9561 | 22 & 23 |
| 518 SKIDDER | 50S597—Up, 94U1—Up 55U152—Up, 95U1—Up | 2P6784 4N3976 | 20 & 21 16 & 17 |
| 112F MOTOR GRADER | 89J1896—Up 80J402—Up | 2P6780 | 18 & 19 |
| 120G MOTOR GRADER | 87V1—Up 82V1—Up | 3P134 | 22 & 23 |
| 130G MOTOR GRADER | 74V1—Up | 3P136 | 22 & 23 |

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 4N3799 78P5248 Up | 4N3801 78P7425 Up | 4N3802 78P8215 Up | 4N3803 78P5188 Up |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Installed on Model..... (See Page 11 for Vehicle Serial Number Range | D4D 83J | 941B 80H | 920 62K | D4D 82J |
| Consists of: | Page | Page | Page | Page |
| CENTRAL STRUCTURE | | | | |
| Cylinder Block | 24 | 24 | 24 | 24 |
| Cylinder Block Cover | 26 | 26 | 26 | 26 |
| Crankshaft | 27 | 27 | 27 | 27 |
| Crankshaft Seal | 32 | 32 | 32 | 34 |
| Connecting Rod and Piston | 35 | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 | 36 |
| UPPER STRUCTURE | | | | |
| Cylinder Head | 37 | 37 | 37 | 37 |
| Cylinder Head Fastener | 39 | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 | 40 |
| Lifting Eye | 41 | 41 | 41 | 41 |
| FRONT STRUCTURE | | | | |
| Front Housing | 41 | 41 | 41 | 41 |
| Front Housing Cover | 42 | 43 | 43 | 42 |
| Front Housing Fastener | 44 | 44 | 44 | 44 |
| Front Gear—Timing | 45 | 45 | 45 | 45 |
| Trunnion | 46 | 46 | 46 | 46 |
| Pulley | 47 | 49 | 50 | 47 |
| Crankshaft Hub | 57 | 57 | 57 | 57 |
| Support | 58 | 58 | 58 | 59 |
| Fan Drive | 62 | 62 | 62 | 62 |
| REAR STRUCTURE | | | | |
| Flywheel Housing | 62 | 62 | 63 | 63 |
| Flywheel Housing Cover | 65 | 65 | None | None |
| Flywheel | 66 | 66 | 66 | 67 |
| LOWER STRUCTURE | | | | |
| Oil Pan | 68 | 68 | 69 | 68 |
| Oil Pan Fastener | 69 | 69 | 70 | 69 |
| Oil Level Gauge | 70 | 71 | 70 | 70 |
| LUBRICATION SYSTEM | | | | |
| Oil Pump | 71 | 71 | 71 | 71 |
| Oil Lines | 75 | 75 | 76 | 75 |
| Oil Filter | 78 | 78 | 78 | 78 |
| Oil Filler | 79 | 79 | 79 | 79 |
| Breather | 80 | 80 | 80 | 80 |
| Fumes Disposal | 81 | 81 | 81 | 81 |
| (Continued on Page 13) | | | | |

| ENGINE ARRANGEMENT | 4N3799 78P5248 Up | 4N3801 78P7425 Up | 4N3802 78P8215 Up | 4N3803 78P5188 Up |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Installed on Model..... | D4D | 941B | 920 | D4D |
| (See Page 11 for Vehicle Serial Number Range | 83J | 80H | 62K | 82J |
| (Continued from Page 12) | | | | |
| Consists of: | Page | Page | Page | Page |
| COOLING SYSTEM | | | | |
| Water Pump | 84 | 85 | 84 | 84 |
| Water Lines..... | 83 | 83 | 83 | 83 |
| Housing and Regulator..... | 86 | 86 | 87 | 86 |
| Engine Oil Cooler | None | None | 91 | None |
| Transmission Oil Cooler..... | 90 | 90 | 90 | None |
| Water Lines—Pipe..... | 91 | 91 | None | 91 |
| Water Lines—Elbow | None | None | None | 92 |
| INTAKE AND EXHAUST SYSTEM | | | | |
| Exhaust Manifolds..... | 93 | 93 | 93 | 93 |
| Exhaust Manifold Fastener..... | 94 | 94 | 95 | 94 |
| Exhaust Pipe..... | 96 | 96 | 97 | 96 |
| Air Lines | 107 | 108 | 108 | 107 |
| Air Compressor | None | None | 113 | None |
| Air Compressor Lines..... | None | None | 119 | None |
| Turbocharger | None | None | None | None |
| Turbocharger Oil Lines..... | None | None | None | None |
| FUEL SYSTEM AND GOVERNOR | | | | |
| Accessory Drive | None | None | None | None |
| Service Meter | None | None | None | None |
| Primary Fuel Filter | None | None | None | None |
| Fuel Filter | 125 | 125 | 125 | 125 |
| Fuel Filter Assembly..... | None | None | None | None |
| Fuel Priming Pump..... | 128 | 128 | 128 | 128 |
| Fuel Transfer Pump..... | None | None | None | None |
| Governor and Fuel Injection Pump..... | 148 | 152 | 147 | 150 |
| Fuel Injection Lines | 188 | 188 | 188 | 188 |
| Governor Cover | 202 | 202 | 202 | 202 |
| Service Meter Drive | None | None | None | None |
| Torque Control | 196 | 198 | 198 | 196 |
| ELECTRICAL SYSTEM | | | | |
| Electric Starting Motor..... | 203 | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 | 213 |
| Alternator..... | 213 | 213 | 213 | 213 |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | | |

| ENGINE ARRANGEMENT | 4N3806 | 4N3807 | 4N3974 | 4N3975 |
|---|---------|---------|---------|------------|
| 3304 Engine Serial No..... | 78P5152 | 78P5304 | 78P7425 | 78P9707 |
| Installed on Model..... | D4D | 930 | 955K | 950 |
| (See Page 11 for Vehicle Serial Number Range | 84J | 41K | 85J | 81J 31K |
| Consists of: | Page | Page | Page | Page |
| CENTRAL STRUCTURE | | | | |
| Cylinder Block | 24 | 24 | 24 | 24 |
| Cylinder Block Cover | 26 | 26 | 26 | 26 |
| Crankshaft | 27 | 27 | 28 | 28 |
| Crankshaft Seal | 34 | 32 | 33 | 33 |
| Connecting Rod and Piston | 35 | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 | 36 |
| UPPER STRUCTURE | | | | |
| Cylinder Head | 37 | 37 | 38 | 38 |
| Cylinder Head Fastener | 39 | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 | 40 |
| Lifting Eye..... | 41 | 41 | 41 | 41 |
| FRONT STRUCTURE | | | | |
| Front Housing | 41 | 41 | 41 | 41 |
| Front Housing Cover..... | 42 | 43 | 43 | 43 |
| Front Housing Fastener..... | 44 | 44 | 44 | 44 |
| Front Gear—Timing..... | 45 | 45 | 45 | 45 |
| Trunnion..... | 46 | 46 | 46 | 46 |
| Pulley | 47 | 50 | 51 | 52 |
| Crankshaft Hub | 57 | 57 | 57 | 57 |
| Support..... | 59 | 58 | 59 | 60 |
| Fan Drive | 62 | 62 | 62 | 62 |
| REAR STRUCTURE | | | | |
| Flywheel Housing | 63 | 63 | 62 | 63 |
| Flywheel Housing Cover | None | None | 65 | None |
| Flywheel..... | 67 | 66 | 66 | 66 |
| LOWER STRUCTURE | | | | |
| Oil Pan | 68 | 69 | 68 | 69 |
| Oil Pan Fastener | 69 | 70 | 69 | 70 |
| Oil Level Gauge | 70 | 70 | 71 | 70 |
| LUBRICATION SYSTEM | | | | |
| Oil Pump | 71 | 71 | 71 | 71 |
| Oil Lines | 75 | 76 | 76 | 76 |
| Oil Filter | 78 | 78 | 78 | 78 |
| Oil Filler..... | 79 | 79 | 80 | 79 |
| Breather | 80 | 80 | 80 | 80 |
| Fumes Disposal | 81 | 81 | 81 | 81 |

(Continued on Page 15)

| ENGINE ARRANGEMENT | 4N3806 78P5152 | 4N3807 78P5304 | 4N3974 78P7425 | 4N3975 78P9707 |
|--|-------------------|-------------------|-------------------|-------------------|
| 3304 Engine Serial No. | | | | |
| Installed on Model | D4D | 930 | 955K | 950 |
| (See Page 11 for Vehicle Serial Number Range | 84J | 41K | 85J | 81J 31K |
| (Continued from Page 14) | | | | |
| Consists of: | | | | |
| COOLING SYSTEM | Page | Page | Page | Page |
| Water Pump | 84 | 84 | 85 | 84 |
| Water Lines | 83 | 83 | 83 | 83 |
| Housing and Regulator | 86 | 87 | 87 | 88 |
| Engine Oil Cooler | None | 91 | 91 | 91 |
| Transmission Oil Cooler | None | 90 | None | 90 |
| Water Lines—Pipe | 91 | None | None | None |
| Water Lines—Elbow | 92 | None | 92 | None |
| INTAKE AND EXHAUST SYSTEM | | | | |
| Exhaust Manifolds | 93 | 93 | 93 | 93 |
| Exhaust Manifold Fastener | 94 | 94 | 96 | 96 |
| Exhaust Pipe | 96 | 97 | None | None |
| Air Lines | 107 | 108 | 109 | 107 |
| Air Compressor | None | 113 | None | 115 |
| Air Compressor Lines | None | 119 | None | 119 |
| Turbocharger | None | None | 99 | 98 |
| Turbocharger Oil Lines | None | None | 105 | 106 |
| FUEL SYSTEM AND GOVERNOR | | | | |
| Accessory Drive | None | None | None | None |
| Service Meter | None | None | None | None |
| Primary Fuel Filter | None | None | None | None |
| Fuel Filter | 125 | 125 | 125 | None |
| Fuel Filter Assembly | None | None | None | 138 |
| Fuel Priming Pump | 128 | 128 | 128 | 129 |
| Fuel Transfer Pump | None | None | None | None |
| Governor and Fuel Injection Pump | 154 | 155 | 147 | 146 |
| Fuel Injection Lines | 188 | 188 | 189 | 190 |
| Governor Cover | 202 | 202 | 202 | 202 |
| Service Meter Drive | None | None | None | None |
| Torque Control | 198 | 197 | 199 | 199 |
| ELECTRICAL SYSTEM | | | | |
| Electric Starting Motor | 203 | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 | 213 |
| Alternator | 213 | 213 | 213 | 213 |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | | |

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 4N3976 78P 11063—Up | 2P6775 78P1 to 78P5247 | 2P6776 78P1 to 78P7424 |
|---|---------------------------------|------------------------------|------------------------------|
| Installed on Model (See Page 11 for Vehicle Serial Number Range | 518 50S, 55U 94U, 95U | D4D 83J | 941B 80H |
| Consists of: | Page | Page | Page |
| CENTRAL STRUCTURE | | | |
| Cylinder Block | 24 | 24 | 24 |
| Cylinder Block Cover | 26 | 26 | 26 |
| Crankshaft | 28 | 27 | 27 |
| Crankshaft Seal | 33 | 32 | 32 |
| Connecting Rod and Piston | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 |
| UPPER STRUCTURE | | | |
| Cylinder Head | 38 | 37 | 37 |
| Cylinder Head Fastener | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 |
| Lifting Eye | 41 | 41 | 41 |
| FRONT STRUCTURE | | | |
| Front Housing | 41 | 42 | 42 |
| Front Housing Cover | 43 | 42 | 43 |
| Front Housing Fastener | 44 | 44 | 44 |
| Front Gear—Timing | 45 | 45 | 45 |
| Trunnion | 46 | 46 | 46 |
| Pulley | 53 | 47 | 48 |
| Crankshaft Hub | 57 | 57 | 57 |
| Support | 60 | 58 | 58 |
| Fan Drive | 62 | 62 | 62 |
| REAR STRUCTURE | | | |
| Flywheel Housing | 63 | 62 | 62 |
| Flywheel Housing Cover | None | 65 | 65 |
| Flywheel | 66 | 66 | 66 |
| LOWER STRUCTURE | | | |
| Oil Pan | 68 | 68 | 68 |
| Oil Pan Fastener | 69 | 69 | 69 |
| Oil Level Gauge | 70 | 70 | 71 |
| LUBRICATION SYSTEM | | | |
| Oil Pump | 71 | 71 | 71 |
| Oil Lines | 76 | 75 | 75 |
| Oil Filter | 78 | 78 | 78 |
| Oil Filler | 79 | 79 | 79 |
| Breather | 80 | 80 | 80 |
| Fumes Disposal | 81 | 82 | 82 |
| (Continued on Page 17) | | | |

| ENGINE ARRANGEMENT | 4N3976 | 2P6775 | 2P6776 |
|---|----------------------|--------------------|--------------------|
| 3304 Engine Serial No. | 78P11063 Up | 78P1 to 78P5247 | 78P1 to 78P7424 |
| Installed on Model | 518 | D4D | 941B |
| (See Page 11 for Vehicle Serial Number Range | 50S, 55U 94U, 95U | 83J | 80H |
| (Continued from Page 16) | | | |
| Consists of: | Page | Page | Page |
| COOLING SYSTEM | | | |
| Water Pump | 84 | 84 | 85 |
| Water Lines | 83 | 83 | 83 |
| Housing and Regulator | 88 | 86 | 86 |
| Engine Oil Cooler | 91 | None | None |
| Transmission Oil Cooler | 90 | 90 | 90 |
| Water Lines—Pipe | None | 91 | 91 |
| Water Lines—Elbow | None | None | None |
| INTAKE AND EXHAUST SYSTEM | | | |
| Exhaust Manifolds | 93 | 93 | 93 |
| Exhaust Manifold Fastener | 96 | 94 | 94 |
| Exhaust Pipe | None | 96 | 96 |
| Air Lines | 110 | 107 | 108 |
| Air Compressor | 115 | None | None |
| Air Compressor Lines | 119 | None | None |
| Turbocharger | 101 | None | None |
| Turbocharger Oil Lines | 106 | None | None |
| FUEL SYSTEM AND GOVERNOR | | | |
| Accessory Drive | None | 120 | 120 |
| Service Meter | None | 122 | 123 |
| Primary Fuel Filter | None | 125 | 125 |
| Fuel Filter | None | 126 | 126 |
| Fuel Filter Assembly | 138 | None | None |
| Fuel Priming Pump | 129 | 130 | 130 |
| Fuel Transfer Pump | None | 135 | 135 |
| Governor and Fuel Injection Pump | 144 | 146 | 145 |
| Fuel Injection Lines | 191 | 192 | 192 |
| Governor Cover | 202 | None | None |
| Service Meter Drive | None | None | 124 |
| Torque Control | 199 | 199 | 199 |
| ELECTRICAL SYSTEM | | | |
| Electric Starting Motor | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 |
| Alternator | 213 | 213 | 213 |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | |

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 2P6777 78P1 to 78P8214 | 2P6778 78P1 to 78P5187 | 2P6779 78P1 | 2P6780 78P1 |
|--|------------------------------|------------------------------|----------------|--------------------|
| Installed on Model..... (See Page 11 for Vehicle Serial Number Range | 920 62K | D4D 82J | 951C 86J | 112F 89J 80J |
| Consists of: | Page | Page | Page | Page |
| CENTRAL STRUCTURE | | | | |
| Cylinder Block | 24 | 24 | 24 | 24 |
| Cylinder Block Cover | 26 | 26 | 26 | 26 |
| Crankshaft | 27 | 27 | 27 | 27 |
| Crankshaft Seal | 32 | 34 | 32 | 34 |
| Connecting Rod and Piston | 35 | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 | 36 |
| UPPER STRUCTURE | | | | |
| Cylinder Head | 37 | 37 | 37 | 37 |
| Cylinder Head Fastener | 39 | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 | 40 |
| Lifting Eye | 41 | 41 | 41 | 41 |
| FRONT STRUCTURE | | | | |
| Front Housing | 42 | 42 | 41 | 42 |
| Front Housing Cover | 43 | 42 | 43 | 43 |
| Front Housing Fastener | 44 | 44 | 44 | 44 |
| Front Gear—Timing | 45 | 45 | 45 | 46 |
| Trunnion | 46 | 46 | 46 | 46 |
| Pulley | 50 | 47 | 54 | 56 |
| Crankshaft Hub | 57 | 57 | 57 | None |
| Support | 58 | 59 | 58 | 60 |
| Fan Drive | 62 | 62 | 62 | 62 |
| REAR STRUCTURE | | | | |
| Flywheel Housing | 63 | 63 | 62 | 64 |
| Flywheel Housing Cover | None | None | 65 | 65 |
| Flywheel | 66 | 67 | 66 | 67 |
| LOWER STRUCTURE | | | | |
| Oil Pan | 69 | 68 | 68 | 69 |
| Oil Pan Fastener | 70 | 69 | 69 | 70 |
| Oil Level Gauge | 70 | 70 | 71 | 70 |
| LUBRICATION SYSTEM | | | | |
| Oil Pump | 71 | 71 | 71 | 72 |
| Oil Lines | 76 | 75 | 76 | 77 |
| Oil Filter | 78 | 78 | 78 | 78 |
| Oil Filler | 79 | 79 | 79 | 79 |
| Breather | 80 | 80 | 80 | 80 |
| Fumes Disposal | 82 | 82 | 81 | 82 |

(Continued on Page 19)

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 2P6777 78P1 to 78P8214 | 2P6778 78P1 to 78P5187 | 2P6779 78P1 | 2P6780 78P1 |
|--|------------------------------|------------------------------|----------------|--------------------|
| Installed on Model..... (See Page 11 for Vehicle Serial Number Range | 920 62K | D4D 82J | 951D 86J | 112F 89J 80J |
| (Continued from Page 18) Consists of: COOLING SYSTEM | Page | Page | Page | Page |
| Water Pump | 84 | 84 | 85 | 85 |
| Water Lines | 83 | 83 | 83 | 83 |
| Housing and Regulator..... | 87 | 86 | 86 | 89 |
| Engine Oil Cooler | 91 | None | 91 | 91 |
| Transmission Oil Cooler..... | 90 | None | None | None |
| Water Lines—Pipe | None | 91 | None | None |
| Water Lines—Elbow | None | 92 | 92 | 92 |
| INTAKE AND EXHAUST SYSTEM | | | | |
| Exhaust Manifolds | 93 | 93 | 93 | 93 |
| Exhaust Manifold Fastener | 94 | 94 | 94 | 94 |
| Exhaust Pipe | 97 | 96 | 96 | 98 |
| Air Lines | 108 | 107 | 108 | 110 |
| Air Compressor | 113 | None | None | None |
| Air Compressor Lines | 119 | None | None | None |
| Turbocharger | None | None | None | None |
| Turbocharger Oil Lines | None | None | None | None |
| FUEL SYSTEM AND GOVERNOR | | | | |
| Accessory Drive | 121 | 120 | None | 120 |
| Service Meter | 122 | 123 | None | 123 |
| Primary Fuel Filter | 125 | 125 | None | 125 |
| Fuel Filter | 127 | 126 | 125 | 126 |
| Fuel Filter Assembly..... | None | None | None | None |
| Fuel Priming Pump | 133 | 130 | 128 | 134 |
| Fuel Transfer Pump..... | 135 | 135 | None | 135 |
| Governor and Fuel Injection Pump | 143 | 145 | 148 | 142 |
| Fuel Injection Lines | 192 | 192 | 188 | 192 |
| Governor Cover | None | None | 202 | None |
| Service Meter Drive | None | None | None | None |
| Torque Control | 199 | 199 | 196 | 200 |
| ELECTRICAL SYSTEM | | | | |
| Electric Starting Motor | 203 | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 | 213 |
| Alternator | 213 | 213 | 213 | 213 |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | | |

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 2P6781 78P1 to 78P5151 | 2P6782 78P1 to 78P5303 | 2P6783 78P1 to 78P7424 | 2P6784 78P1 to 78P11062 |
|---|------------------------------|------------------------------|------------------------------|-------------------------------|
| Installed on Model..... | D4D | 930 | 955L | 518 |
| (See Page 11 for Vehicle Serial Number Range | 84J | 41K | 85J | 50S, 55U 94U, 95U |
| Consists of: | Page | Page | Page | Page |
| CENTRAL STRUCTURE | | | | |
| Cylinder Block | 24 | 24 | 24 | 24 |
| Cylinder Block Cover | 26 | 26 | 24 | 24 |
| Crankshaft | 27 | 27 | 27 | 27 |
| Crankshaft Seal | 34 | 32 | 32 | 32 |
| Connecting Rod and Piston | 35 | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 | 36 |
| UPPER STRUCTURE | | | | |
| Cylinder Head | 37 | 37 | 38 | 38 |
| Cylinder Head Fastener | 39 | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 | 40 |
| Lifting Eye | 41 | 41 | 41 | 41 |
| FRONT STRUCTURE | | | | |
| Front Housing | 42 | 42 | 42 | 42 |
| Front Housing Cover | 42 | 43 | 43 | 43 |
| Front Housing Fastener | 44 | 44 | 44 | 44 |
| Front Gear—Timing | 45 | 45 | 45 | 45 |
| Trunnion | 46 | 46 | 46 | 46 |
| Pulley | 47 | 50 | 51 | 53 |
| Crankshaft Hub | 57 | 57 | 57 | 57 |
| Support | 59 | 58 | 59 | 60 |
| Fan Drive | 62 | 62 | 62 | 62 |
| REAR STRUCTURE | | | | |
| Flywheel Housing | 63 | 63 | 62 | 63 |
| Flywheel Housing Cover | None | None | 65 | None |
| Flywheel | 67 | 66 | 66 | 66 |
| LOWER STRUCTURE | | | | |
| Oil Pan | 68 | 69 | 68 | 68 |
| Oil Pan Fastener | 69 | 70 | 69 | 69 |
| Oil Level Gauge | 70 | 70 | 71 | 70 |
| LUBRICATION SYSTEM | | | | |
| Oil Pump | 71 | 71 | 71 | 71 |
| Oil Lines | 75 | 76 | 76 | 76 |
| Oil Filter | 78 | 78 | 78 | 78 |
| Oil Filler | 79 | 79 | 80 | 79 |
| Breather | 80 | 80 | 80 | 80 |
| Fumes Disposal | 82 | 82 | 82 | 82 |

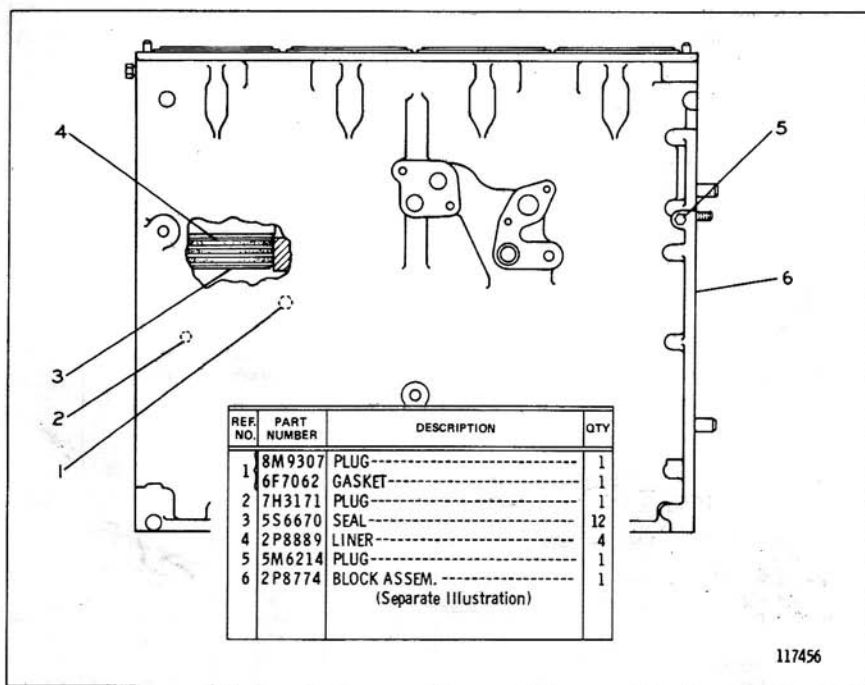
(Continued on Page 21)

| ENGINE ARRANGEMENT 3304 Engine Serial No. | 2P6781 78P1 to 78P5151 | 2P6782 78P1 to 78P5303 | 2P6783 78P1 to 78P7424 | 2P6784 78P1 to 78P11062 |
|--|------------------------------|------------------------------|------------------------------|---------------------------------|
| Installed on Model..... (See Page 11 for Vehicle Serial Number Range | D4D 84J | 930 41K | 955L 85J | 518 50S, 55U 94U, 95U |
| (Continued from Page 20) | | | | |
| Consists of: | | | | |
| COOLING SYSTEM | | | | |
| Water Pump | 84 | 84 | 85 | 84 |
| Water Lines | 83 | 83 | 83 | 83 |
| Housing and Regulator..... | 86 | 87 | 87 | 88 |
| Engine Oil Cooler | None | 91 | 91 | 91 |
| Transmission Oil Cooler..... | None | 90 | None | 90 |
| Water Lines—Pipe | 91 | None | None | None |
| Water Lines—Elbow | 92 | None | 92 | None |
| INTAKE AND EXHAUST SYSTEM | | | | |
| Exhaust Manifolds | 93 | 93 | 93 | 93 |
| Exhaust Manifold Fastener | 94 | 94 | 94 | 94 |
| Exhaust Pipe | 96 | 97 | None | None |
| Air Lines | 107 | 108 | 109 | 110 |
| Air Compressor | None | 113 | None | 115 |
| Air Compressor Lines | None | 119 | None | 119 |
| Turbocharger | None | None | 99 | 100 |
| Turbocharger Oil Lines | None | None | 106 | 105 |
| FUEL SYSTEM AND GOVERNOR | | | | |
| Accessory Drive | 120 | 121 | 120 | 121 |
| Service Meter | 122 | 122 | 122 | None |
| Primary Fuel Filter | 125 | 125 | 125 | 125 |
| Fuel Filter | 126 | 127 | 126 | 127 |
| Fuel Filter Assembly..... | None | None | None | None |
| Fuel Priming Pump | 130 | 133 | 130 | 131 |
| Fuel Transfer Pump..... | 135 | 135 | 135 | 137 |
| Governor and Fuel Injection Pump | 145 | 142 | 145 | 141 |
| Fuel Injection Lines | 192 | 192 | 193 | 193 |
| Governor Cover..... | None | None | None | None |
| Service Meter Drive | None | None | None | None |
| Torque Control | 200 | 201 | 199 | 200 |
| ELECTRICAL SYSTEM | | | | |
| Electric Starting Motor | 203 | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 | 213 |
| Alternator | 213 | 213 | 213 | 213 |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | | |

| ENGINE ARRANGEMENT | 2P6785 78P1 to 78P9706 | 2P9561 78P1 | 3P134 78P 12069 | 3P136 78P 9699 |
|---|------------------------------|----------------|-----------------------|----------------------|
| Installed on Model | 950 | 950 | 120G | 130G |
| (See Page 11 for Vehicle Serial Number Range | 81J 31K | 49U | 87V & 82V | 74V |
| Consists of: | Page | Page | Page | Page |
| CENTRAL STRUCTURE | | | | |
| Cylinder Block | 24 | 24 | 24 | 24 |
| Cylinder Block Cover | 24 | 24 | 26 | 26 |
| Crankshaft | 27B | 27B | 28 | 27B |
| Crankshaft Seal | 33 | 33 | 33 | 33 |
| Connecting Rod and Piston | 35 | 35 | 35 | 35 |
| Camshaft | 36 | 36 | 36 | 36 |
| Balancer | 36 | 36 | 36 | 36 |
| UPPER STRUCTURE | | | | |
| Cylinder Head | 38 | 38 | 38 | 38 |
| Cylinder Head Fastener | 39 | 39 | 39 | 39 |
| Valve Mechanism | 40 | 40 | 40 | 40 |
| Valve Mechanism Cover | 40 | 40 | 40 | 40 |
| Lifting Eye | 41 | 41 | 41 | 41 |
| FRONT STRUCTURE | | | | |
| Front Housing | 42 | 42 | 41 | 41 |
| Front Housing Cover | 43 | 43 | 43 | 43 |
| Front Housing Fastener | 44 | 44 | 44 | 44 |
| Front Gear—Timing | 45 | 45 | 45 | 45 |
| Trunnion | 46 | 46 | 46 | 46 |
| Pulley | 52 | 52 | None | None |
| Crankshaft Hub | 57 | 57 | 57 | 57 |
| Support | 60 | 60 | 61 | 61 |
| Fan Drive | 62 | 62 | None | None |
| REAR STRUCTURE | | | | |
| Flywheel Housing | 63 | 63 | 64 | 64 |
| Flywheel Housing Cover | None | None | None | None |
| Flywheel | 66 | 66 | 68 | 68 |
| LOWER STRUCTURE | | | | |
| Oil Pan | 69 | 68 | 68 | 68 |
| Oil Pan Fastener | None | 69 | 69 | 69 |
| Oil Level Gauge | 70 | 70 | 70 | 70 |
| LUBRICATION SYSTEM | | | | |
| Oil Pump | 71 | 71 | 71 | 71 |
| Oil Lines | 76 | 76 | 76 | 76 |
| Oil Filter | 78 | 78 | 78 | 78 |
| Oil Filler | 79 | 79 | 79 | 79 |
| Breather | 80 | 80 | 80 | 80 |
| Fumes Disposal | 82 | 82 | 83 | 83 |
| (Continued on Page 23) | | | | |

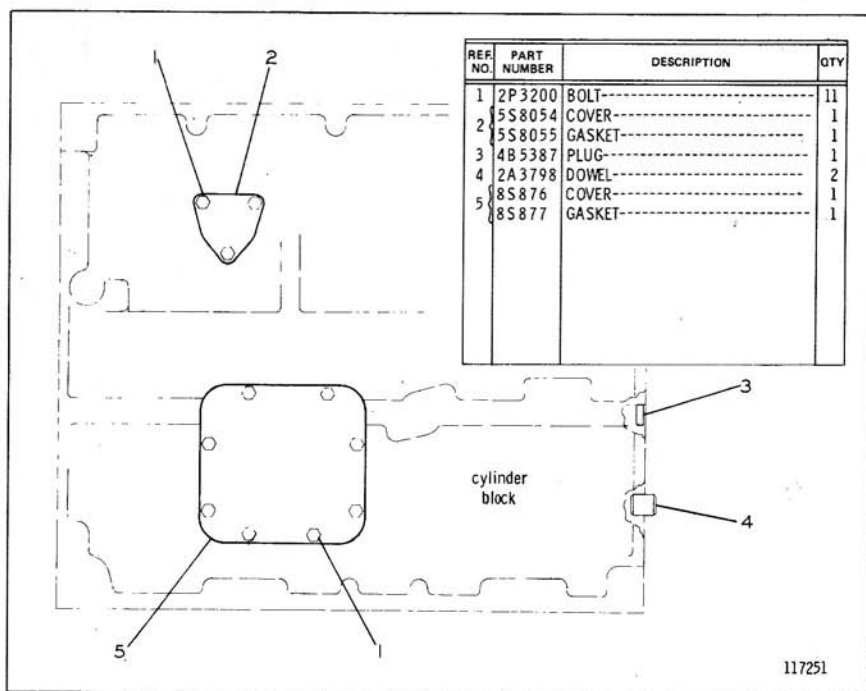
| ENGINE ARRANGEMENT 3304 Engine Serial No. | 2P6785 78P1 to 78P9706 | 2P9561 78P1 | 3P134 78P 12069 | 3P136 78P 9699 |
|--|------------------------------|----------------|-----------------------|----------------------|
| Installed on Model..... | 950 | 950 | 120G | 130G |
| (See Page 11 for Vehicle Serial Number Range | 81J 31K | 49U | 87V 82V | 74V |
| (Continued from Page 22) | | | | |
| Consists of: | | | | |
| COOLING SYSTEM | | | | |
| Water Pump | 84 | 84 | 84 | 84 |
| Water Lines | 83 | 83 | 83 | 83 |
| Housing and Regulator..... | 88 | 88 | 89 | 89 |
| Engine Oil Cooler | 91 | 91 | 91 | 91 |
| Transmission Oil Cooler..... | 90 | 90 | 90 | 90 |
| Water Lines—Pipe | None | None | None | None |
| Water Lines—Elbow | None | None | None | None |
| INTAKE AND EXHAUST SYSTEM | | | | |
| Exhaust Manifolds | 93 | 93 | 93 | 93 |
| Exhaust Manifold Fastener | 94 | 94 | 96 | 96 |
| Exhaust Pipe | None | None | None | None |
| Air Lines | 107 | 107 | 111 | 111 |
| Air Compressor | 115 | 115 | 115 | 115 |
| Air Compressor Lines | 119 | 119 | 118 | 118 |
| Turbocharger | 102 | 102 | 101 | 101 |
| Turbocharger Oil Lines | 105 | 105 | 106 | 106 |
| FUEL SYSTEM AND GOVERNOR | | | | |
| Accessory Drive | 121 | 121 | None | None |
| Service Meter | 124 | 124 | None | None |
| Primary Fuel Filter | 125 | 125 | None | None |
| Fuel Filter | 128 | 128 | 125 | 125 |
| Fuel Filter Assembly | None | None | None | None |
| Fuel Priming Pump | 131 | 131 | 128 | 128 |
| Fuel Transfer Pump | 136 | 136 | None | None |
| Governor and Fuel Injection Pump | 140 | 140 | 139 | 139 |
| Fuel Injection Lines | 193 | 193 | 194 | 195 |
| Governor Cover | None | None | 202 | 202 |
| Service Meter Drive | None | None | None | None |
| Torque Control | 201 | 201 | 199 | 199 |
| ELECTRICAL SYSTEM | | | | |
| Electric Starting Motor | 203 | 203 | 203 | 203 |
| Glow Plug | 213 | 213 | 213 | 213 |
| Alternator | 213 | 213 | None | None |
| Note: Serial number plate is fastened with 2—4B4158 Drive Screws and located on L.H. side of Cylinder Block | | | | |

CATERPILLAR 3304 VEHICULAR ENGINE



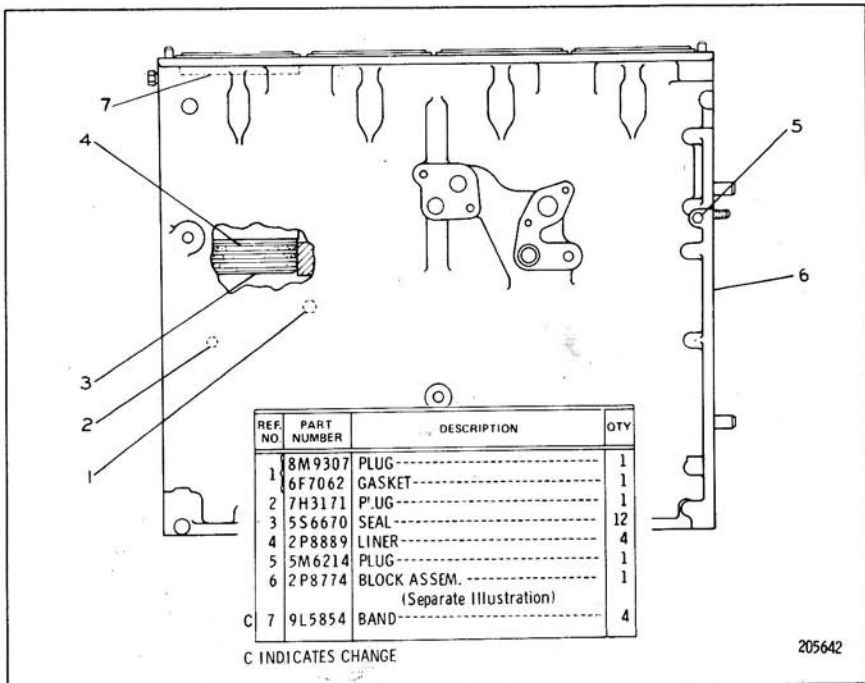
CYLINDER BLOCK (2P6540 N/S)

Serial No. 78P1 to 78P17689 inclusive. Part of all Engine Arrangements
2P8774 Cylinder Block parts are shown on Page 25



CYLINDER BLOCK COVER (2P6254 N/S)

Part of 2P6783, 2P6784, 2P6785 and 2P9561 Engine Arrangements



205642

CYLINDER BLOCK (2P6540 N/S)

Serial No. 78P17690—Up

Part of all Engine Arrangements