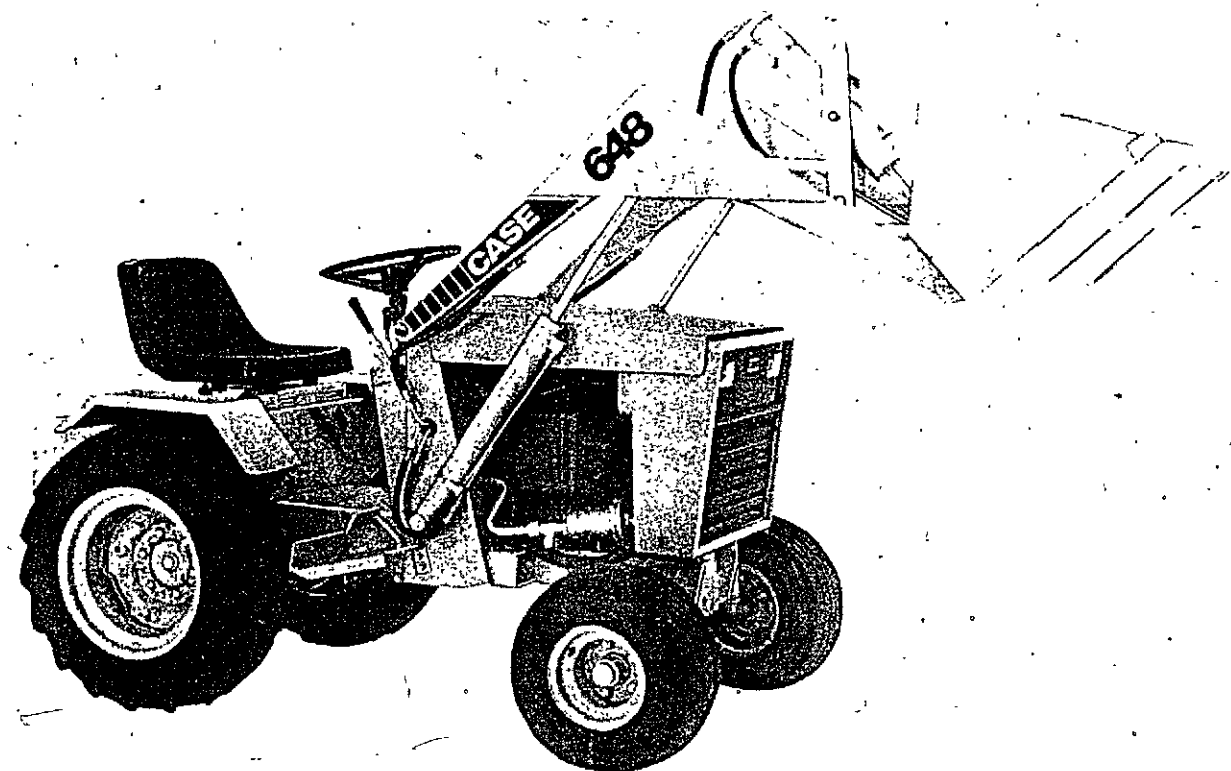
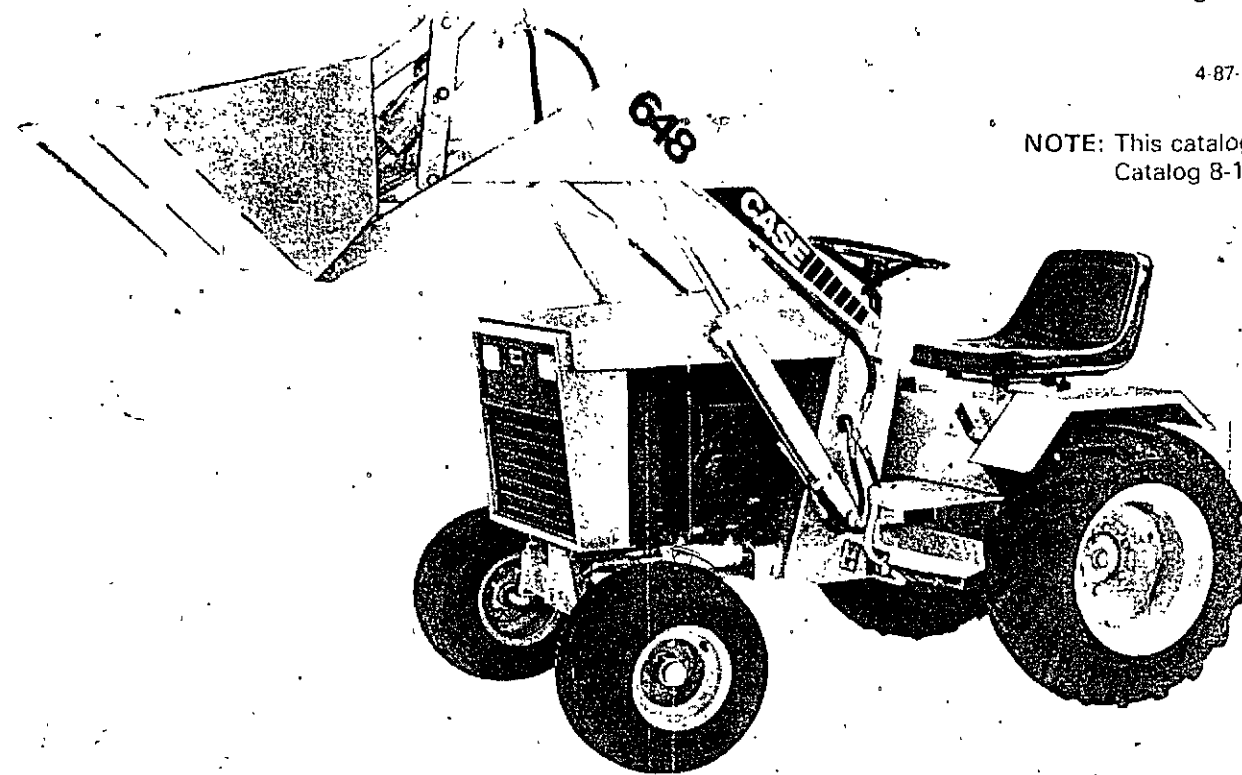


COMPACT WHEEL LOADERS  
MODEL 648 AND 648BH  
Parts Catalog No. 8-1422

4-87-RP-750 362

NOTE: This catalog replaces  
Catalog 8-1421



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| Cylinder - Power Steering .....          | 57    | E2      | Wheels - Front & Rear .....            | 35    | C8      |
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GENERAL INFORMATION

INDEX

There is an index at the front and rear of this catalog.

The front index is an alphabetical index of the major groups or assemblies.

The rear index is a numerical index of the part numbers and pages on which these numbers are shown.

ILLUSTRATION

Each illustration in this catalog shows a group of parts or components. These parts and components are aligned approximately as the parts and components on your machine. Each part and component in an illustration has a reference number. These reference numbers are in a list on the page opposite of the illustration. Next to the reference number is the part number, description and required quantity of the part shown in the illustration.

UAR - "Use as required" indicates that the part quantity is variable.

NSS - "Not sold separately" indicates that the part is only available as a component of an assembly or the part must be purchased locally. If the part is an assembly component, the description will be indented under the assembly description in the parts list.

INDENTED DESCRIPTIONS

An assembly can have many components. The components of an assembly are indicated by an indented description. The quantity for an indented part is the total needed for that complete assembly. See the example.

PARTS ORDERS

All orders must include the following information:

- 1. Correct part number.
- 2. Complete description of part or component.
- 3. Total quantity of each part or component.
- 4. Product model number.
- 5. All necessary product identification numbers.
- 6. Method for sending the parts.
- 7. Complete and correct address.

CATALOG REVISIONS

As the product changes, we will send you new pages for your catalog.

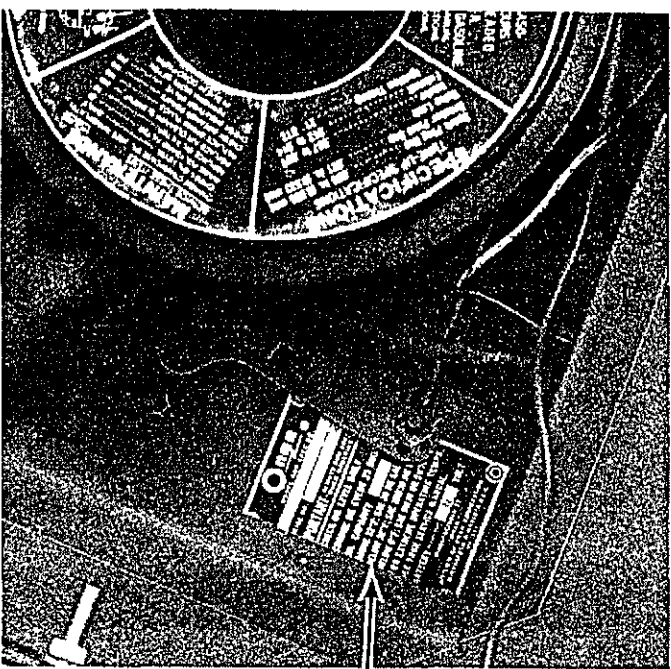
IMPORTANT: Put all revisions into the catalog as soon as possible.

RIGHT HAND AND LEFT HAND IDENTIFICATION

The words right hand (RH) and left hand (LH) as used in this catalog indicate the direction while you are in the operator's seat in the normal operating position.



TRACTOR MODEL AND P.I.N. NUMBER



ENGINE MODEL, SERIAL AND SPECIFICATION NUMBERS

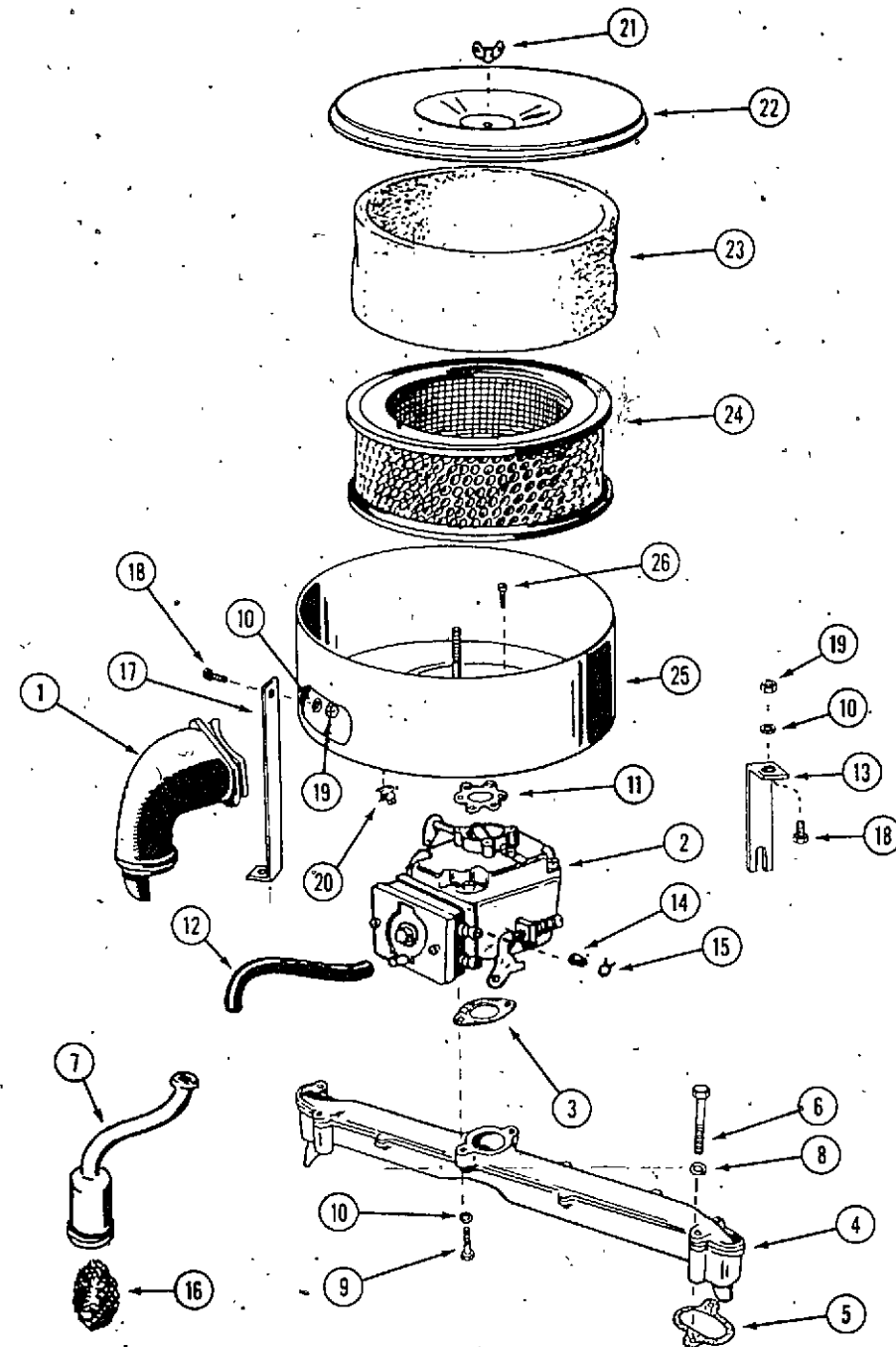
| TRACTOR MODEL | ENGINE MODEL                                |
|---------------|---------------------------------------------|
| 648           | C25262 ENGINE<br>B48M-GAO18 SPEC. NO. 4184A |

| REF. | PART NO. | DESCRIPTION                    | REQ'D |
|------|----------|--------------------------------|-------|
|      | A 55159  | CYLINDER ASSY - rear steering  | 1     |
| 28   | A 56208  | SOCKET ASSY - rear cylinder    | 1     |
| 29   | A 55956  | PLUG - adjusting, socket assy  | 1     |
| 30   | A 55957  | SEAT - socket ball             | 2     |
| 31   | A 56210  | SPRING - socket                | 1     |
| 32   | A 56209  | SEAT - socket spring           | 1     |
| 33   | G 45175  | CLAMP ASSY - socket assy       | 1     |
|      | 16- 836  | BOLT - 1/2" x 2-1/4" N.F. hex  | 1     |
| 34   | 132- 104 | PIN - cotter, 3/16" x 3"       | 1     |
| 35   | A 55889  | STUD - ball, socket & cylinder | 2     |
| 36   | 13- 410  | BOLT - 1/4" x 5/8" N.C., hex   | 4     |
| 37   | 92- 4    | LOCK WASHER - 1/4" SAE         | 4     |

PRODUCT IDENTIFICATION NUMBER (P.I.N.)

While you use this catalog you will see a P.I.N. in the description of some parts. This P.I.N. means that the part indicated can be used only according to the instructions.

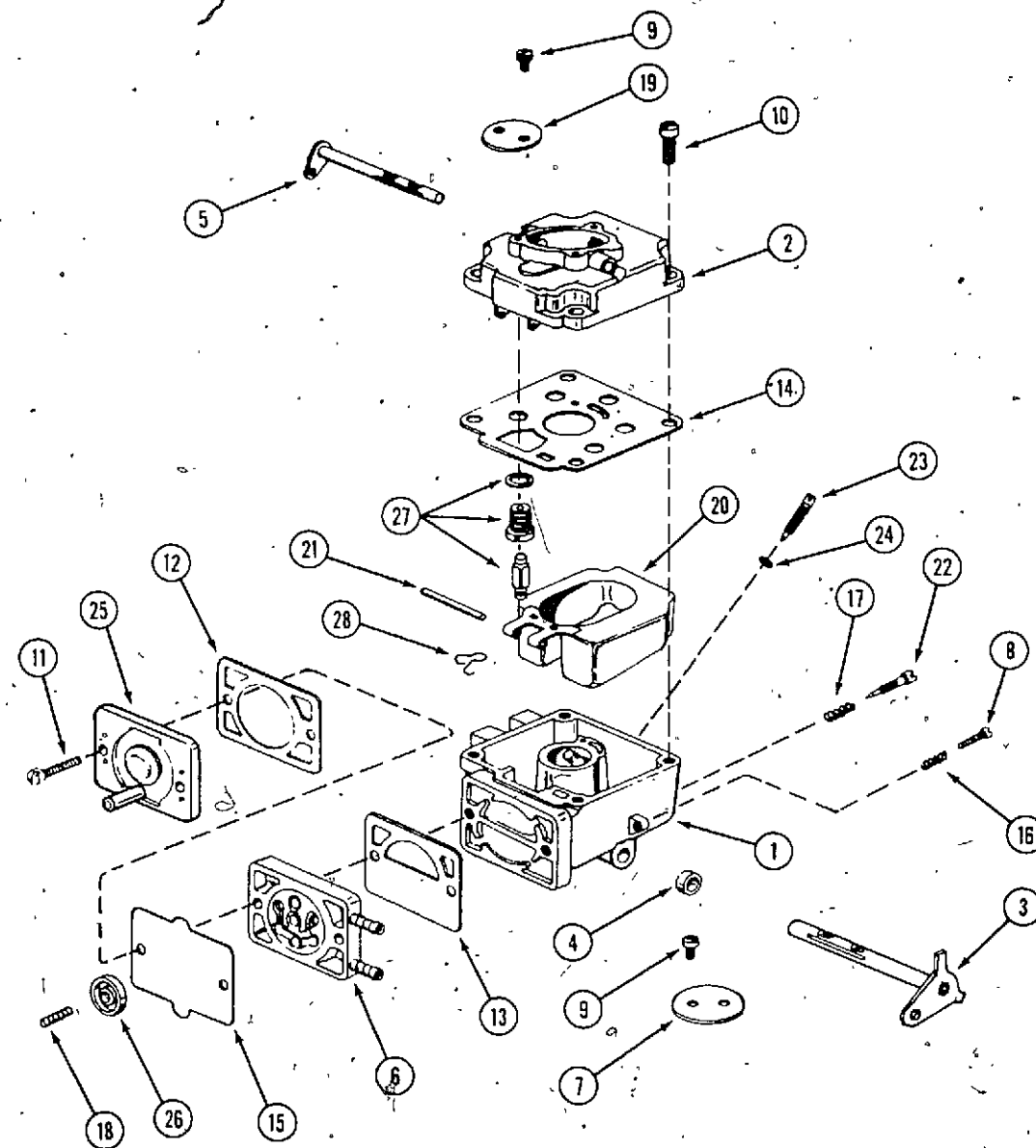
## CARBURETOR, AIR FILTER AND MANIFOLD



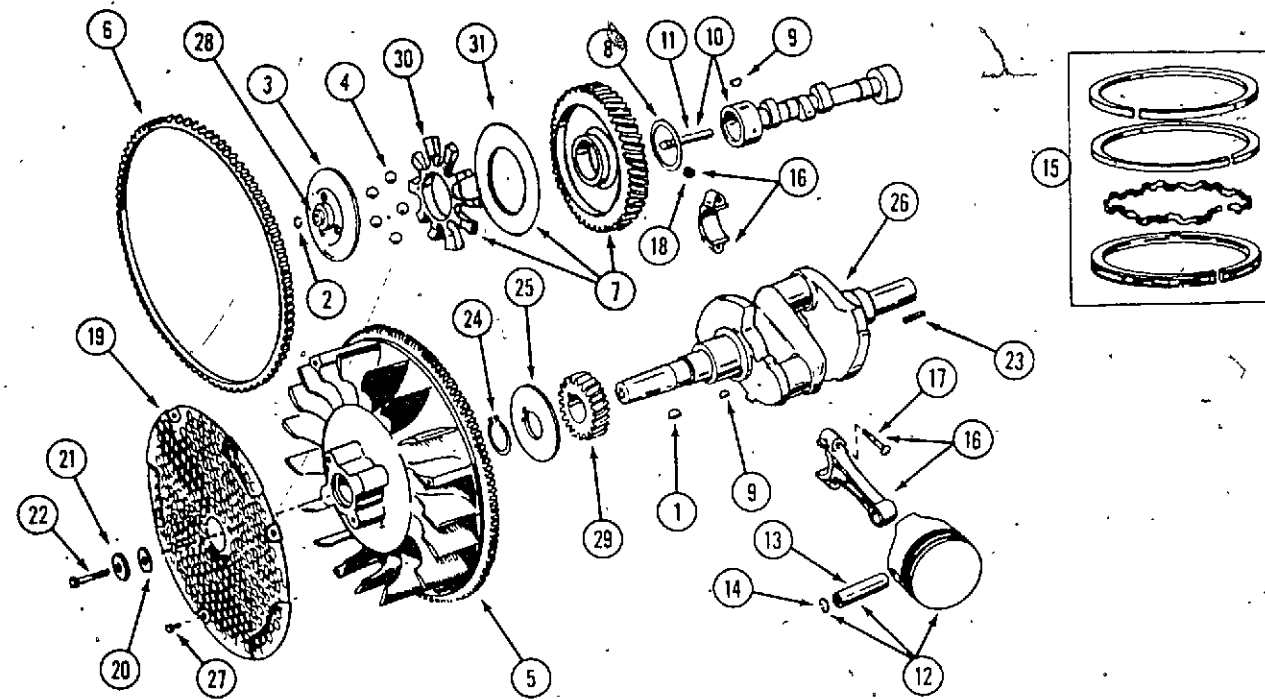
| REF. | PART NO. | DESCRIPTION                                        | REQ'D |
|------|----------|----------------------------------------------------|-------|
| 1    | C 20387  | TUBE - air intake                                  | 1     |
| 2    | C 27507  | CARBURETOR AND FUEL PUMP ASSEMBLY (repairs page 7) | 1     |
| 3    | C 29953  | GASKET - carburetor mounting                       | 1     |
| 4    | C 28720  | MANIFOLD - engine intake                           | 1     |
| 5    | C 26202  | GASKET - intake manifold                           | 2     |
| 6    | 113- 121 | BOLT - manifold 5/16" x 2"                         | 4     |
| 7    | C 24927  | HOSE - breather                                    | 1     |
| 8    | 192- 20  | LOCK WASHER - 5/16"                                | 4     |
| 9    | 113- 65  | BOLT - 1/4" x 1-3/4" N.C. hex                      | 2     |
| 10   | 192- 19  | LOCK WASHER - 1/4"                                 | 3     |
| 11   | C 20396  | GASKET - air cleaner mounting                      | 1     |
| 12   | C 23300  | HOSE - fuel pump                                   | 1     |
| 13   | C 24929  | BRACKET - support                                  | 1     |
| 14   | C 20411  | CAP - fuel pump                                    | 1     |
| 15   | 214- 274 | CLAMP - hose 7/16"                                 | 1     |
| 16   | C 29948  | FILTER - breather                                  | 1     |
| 17   | C 20393  | SUPPORT - air cleaner                              | 1     |
| 18   | 113- 1   | BOLT - 1/4" x 1/2" N.C. hex                        | 1     |
| 19   | 129- 101 | NUT - 1/4" N.C. hex                                | 1     |
| 20   | C 20407  | RETAINER - choke cable                             | 2     |
| 21   | C 26703  | NUT - wing 1/4"                                    | 1     |
| 22   | C 20399  | COVER - air cleaner                                | 1     |
| 23   | C 20405  | PRECLEANER                                         | 1     |
| 24   | C 20398  | ELEMENT - air cleaner                              | 1     |
| 25   | C 20397  | HOUSING - air cleaner                              | 1     |
| 26   | 182- 525 | SCREW - No. 10 x 3/8" round head                   | 3     |
|      | C 22947  | TIE - breather tube                                | 1     |

# MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## C27507 CARBURETOR AND FUEL PUMP ASSEMBLY



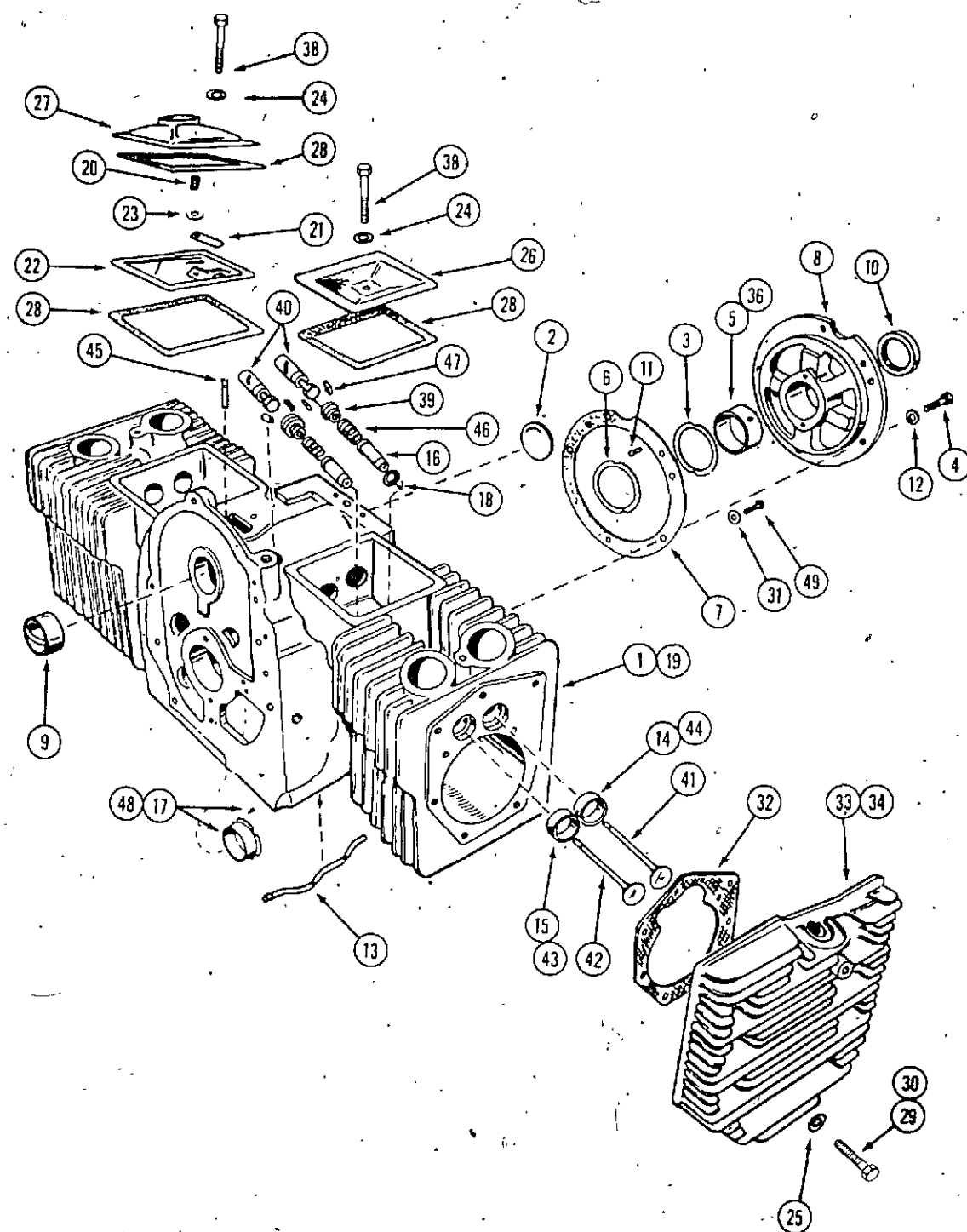
| REF. | PART NO. | DESCRIPTION                                                                      | REQ'D |
|------|----------|----------------------------------------------------------------------------------|-------|
| 1    | NSS      | BODY ASSEMBLY - carburetor (order C27507 carburetor)                             | 1     |
| 2    | NSS      | SLEEVE ASSEMBLY - carburetor (order C27507 carburetor)                           | 1     |
| 3    | C 20425  | SHAFT - throttle (See kit below)                                                 | 1     |
| 4    | C 20426  | PACKING - shaft (See kit below)                                                  | 1     |
| 5    | C 20427  | SHAFT - choke                                                                    | 1     |
| 6    | C 20428  | VALVE - plate assembly (See kit below)                                           | 1     |
| 7    | C 20429  | PLATE - throttle                                                                 | 1     |
| 8    | C 20430  | SCREW - throttle stop                                                            | 1     |
| 9    | C 20431  | SCREW - plate mounting (See kit below)                                           | 4     |
| 10   | C 20432  | SCREW - bowl cover mounting                                                      | 4     |
| 11   | C 20433  | SCREW - pump cover                                                               | 2     |
| 12   | C 20434  | GASKET - cover to valve plate (See kit below)                                    | 1     |
| 13   | C 20435  | GASKET - pump cover (See kit below)                                              | 1     |
| 14   | C 20436  | GASKET - sleeve assembly (See kit below)                                         | 1     |
| 15   | C 20437  | DIAPHRAGM - fuel pump (See kit below)                                            | 1     |
| 16   | C 20438  | SPRING - screw, throttle stop                                                    | 1     |
| 17   | C 20439  | SPRING - idle needle (See kit below)                                             | 1     |
| 18   | C 20440  | SPRING - diaphragm, fuel pump (See kit below)                                    | 1     |
| 19   | C 20441  | PLATE - choke                                                                    | 1     |
| 20   | C 27506  | FLOAT ASSEMBLY - carburetor                                                      | 1     |
| 21   | C 20443  | PIN - float (See kit below)                                                      | 1     |
| 22   | C 20444  | NEEDLE - idle adjust (See kit below)                                             | 1     |
| 23   | C 20445  | NEEDLE ASSEMBLY - power                                                          | 1     |
| 24   | C 20446  | "O" RING - needle assembly (See kit below)                                       | 1     |
| 25   | C 20447  | COVER - fuel pump                                                                | 1     |
| 26   | C 20448  | PLATE - spring, fuel pump (See kit below)                                        | 2     |
| 27   | C 20449  | INLET - needle and seat assembly (See kit below)                                 | 1     |
| 28   | C 20450  | RETAINER - float pin                                                             | 1     |
|      | C 24665  | KIT - gasket (includes items 4, 12, 13, 14, 15 and 24)                           | 1     |
|      | C 24666  | KIT - repair (includes items 3, 6, 9, 15, 17, 18, 21, 22, 26, 27 and gasket kit) | 1     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

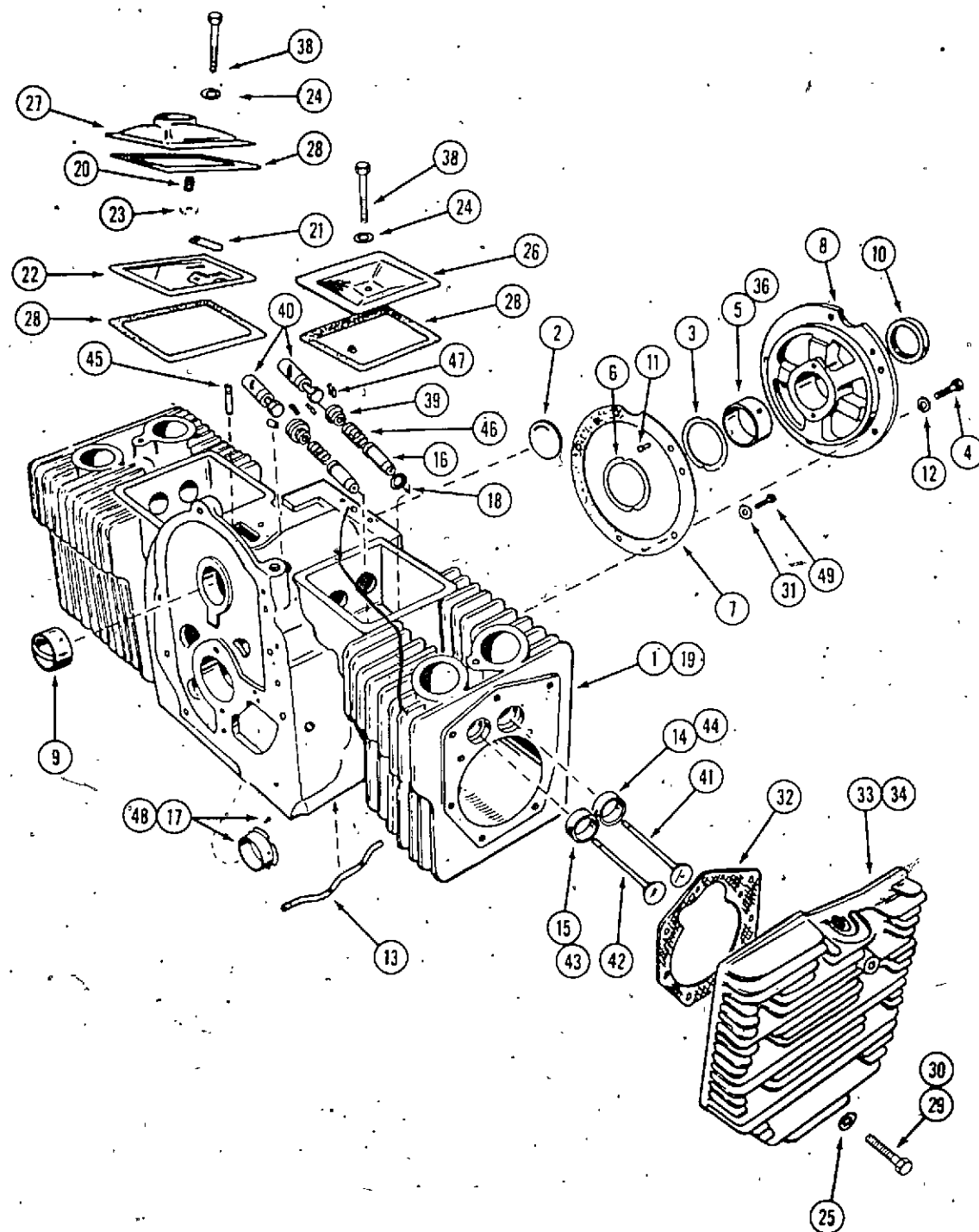
## PISTON, CRANKSHAFT, FLYWHEEL AND CAMSHAFT

| REF. | PART NO.  | DESCRIPTION                                                  | REQ'D |
|------|-----------|--------------------------------------------------------------|-------|
| 1    | 126- 13   | KEY - woodruff 3/16 x 5/8, flywheel mounting                 | 1     |
| 2    | C 20223   | RING - camshaft center pin                                   | 1     |
| 3    | C 24326   | CUP - governor                                               | 1     |
| 4    | 211- 2116 | BALL - governor                                              | 5     |
| 5    | C 24943   | FLYWHEEL - engine (includes ring gear and magnet ring)       | 1     |
| 6    | C 20226   | GEAR - ring, flywheel                                        | 1     |
| 7    | C 22261   | GEAR ASSEMBLY - camshaft (includes items 30 and 31)          | 1     |
| 8    | C 20229   | WASHER - thrust, camshaft gear                               | 1     |
| 9    | 126- 9    | KEY - woodruff 1/8" x 1/2" (0.13 x 12.7 mm)                  | 2     |
| 10   | C 23304   | CAMSHAFT - (includes C20233 pin)                             | 1     |
| 11   | C 20233   | PIN - camshaft center                                        | 1     |
| 12   | C 24931   | PISTON AND PIN - standard (includes item 14)                 | 2     |
| 12   | C 24932   | PISTON AND PIN - .005" oversize (includes item 14) (0.13 mm) | 2     |
| 12   | C 24933   | PISTON AND PIN - .010" oversize (includes item 14) (0.25 mm) | 2     |
| 12   | C 24934   | PISTON AND PIN - .020" oversize (includes item 14) (0.51 mm) | 2     |
| 12   | C 24935   | PISTON AND PIN - .030" oversize (includes item 14) (0.76 mm) | 2     |
| 12   | C 24936   | PISTON AND PIN - .040" oversize (includes item 14) (1.02 mm) | 2     |
| 13   | C 29972   | PIN - piston                                                 | 2     |
| 14   | C 20241   | RETAINER - piston pin                                        | 4     |
| 15   | C 29739   | RING SET - piston (standard)                                 | 2     |
| 15   | C 24938   | RING SET - (.005" oversize) (0.13 mm)                        | 2     |
| 15   | C 24939   | RING SET - piston (.010" oversize) (0.25 mm)                 | 2     |
| 15   | C 24940   | RING SET - piston (.020" oversize) (0.51 mm)                 | 2     |
| 15   | C 24941   | RING SET - piston (.030" oversize) (0.76 mm)                 | 2     |
| 15   | C 24942   | RING SET - piston (.040" oversize) (1.02 mm)                 | 2     |
| 16   | C 25383   | CONNECTING ROD ASSEMBLY - (standard)                         | 2     |
| 16   | C 25384   | CONNECTING ROD ASSEMBLY - (.010" undersize) (0.25 mm)        | 2     |
| 16   | C 25385   | CONNECTING ROD ASSEMBLY - (.020" undersize) (0.51 mm)        | 2     |
| 16   | C 25386   | CONNECTING ROD ASSEMBLY - (.030" undersize) (0.76 mm)        | 2     |
| 17   | C 25774   | BOLT - connecting rod 5/16" special N.F.                     | 4     |
| 18   | C 25775   | NUT - lock, connecting rod 5/16 N.F.                         | 4     |
| 19   | C 20215   | SCREEN - flywheel                                            | 1     |
| 20   | C 20303   | WASHER - 7/16" flywheel mounting                             | 1     |
| 21   | 92- 7     | LOCKWASHER - 7/16"                                           | 1     |
| 22   | 113- 321  | BOLT - 7/16" x 4" N.C. hex, flywheel mounting                | 1     |
| 23   | C 28321   | KEY - square, 1/4" x 3/4" rear crankshaft                    | 1     |
| 24   | C 20218   | RETAINER - crankshaft gear                                   | 1     |
| 25   | C 20219   | WASHER - retaining, crankshaft gear                          | 1     |
| 26   | C 25776   | CRANKSHAFT - engine                                          | 1     |
| 27   | 182- 547  | SCREW - locking 1/4" x 1/2" N.C. hex                         | 3     |
| 28   | C 24325   | HUB - governor cup                                           | 2     |
| 29   | C 22262   | GEAR - crankshaft                                            | 1     |
| 30   | C 29973   | SPACER - governor ball                                       | 1     |
| 31   | C 22264   | PLATE - governor ball                                        | 1     |



## ENGINE BLOCK AND ATTACHING PARTS

| REF. | PART NO.  | DESCRIPTION                                                                                                                                                                                                | REQ'D |
|------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1    | C 25223   | BLOCK ASSEMBLY - cylinder, standard bore                                                                                                                                                                   | 1     |
| 2    | 41- 26    | PLUG - camshaft, expansion                                                                                                                                                                                 | 1     |
| 3    | C 20256   | SHIM - rear bearing plate (.005") (0.13 mm)                                                                                                                                                                | UAR   |
| 4    | 113- 208  | BOLT - 3/8" x 1-1/4" N.C. hex                                                                                                                                                                              | 5     |
| 5    | C 22618   | BEARING - crankshaft, rear (standard)                                                                                                                                                                      | 1     |
| 6    | C 20267   | WASHER - thrust, crankshaft bearing                                                                                                                                                                        | 2     |
| 7    | C 20268   | GASKET - bearing plate                                                                                                                                                                                     | 1     |
| 8    | C 20269   | PLATE - bearing (does not include bearings)                                                                                                                                                                | 1     |
| 9    | C 20270   | BEARING - camshaft 3/4" (service part is 5/16")                                                                                                                                                            | 2     |
| 10   | C 20271   | SEAL - bearing plate                                                                                                                                                                                       | 1     |
| 11   | C 20272   | PIN - main bearing stop                                                                                                                                                                                    | 4     |
| 12   | 192- 21   | LOCK WASHER - 3/8" bearing plate                                                                                                                                                                           | 5     |
| 13   | C 24946   | TUBE - oil, crankcase                                                                                                                                                                                      | 1     |
| 14   | C 20287   | INSERT - valve seat, intake                                                                                                                                                                                | 2     |
| 15   | C 29974   | INSERT - valve seat, exhaust                                                                                                                                                                               | 2     |
| 16   | C 20292   | GUIDE - valve                                                                                                                                                                                              | 4     |
| 17   | C 20295   | BEARING - crankshaft front (standard)                                                                                                                                                                      | 1     |
| 18   | C 20302   | GASKET - valve guide, intake                                                                                                                                                                               | 2     |
| 19   | C 25777   | BLOCK ASSEMBLY - short (includes: cylinder and crankcase, all bearings, crankshaft, camshaft, timing gear, governor gear case, connecting rods, pistons, piston rings, valves, oil pump and breather tube) | 1     |
| 20   | C 20243   | SPRING - breather valve                                                                                                                                                                                    | 1     |
| 21   | C 20244   | VALVE - breather                                                                                                                                                                                           | 1     |
| 22   | C 20245   | BAFFLE - breather                                                                                                                                                                                          | 1     |
| 23   | 195- 2010 | WASHER - 1/4"                                                                                                                                                                                              | 1     |
| 24   | C 20247   | WASHER - 1/4" copper                                                                                                                                                                                       | 2     |
| 25   | C 20248   | WASHER - 5/16"                                                                                                                                                                                             | 18    |
| 26   | C 20250   | COVER - valve                                                                                                                                                                                              | 1     |
| 27   | C 24948   | COVER - valve (with breather port)                                                                                                                                                                         | 1     |
| 28   | C 20251   | GASKET - valve cover                                                                                                                                                                                       | 3     |
| 29   | 26- 532   | BOLT - head, 5/16" - 18 x 2"                                                                                                                                                                               | 6     |
| 30   | 26- 526   | BOLT - head, 5/16" - 18 x 1-5/8"                                                                                                                                                                           | 12    |
| 31   | C 20574   | WASHER - copper 3/8"                                                                                                                                                                                       | 2     |
| 32   | C 26201   | GASKET - cylinder head                                                                                                                                                                                     | 2     |
| 33   | C 24949   | HEAD - L.H. No. 2                                                                                                                                                                                          | 1     |
| 34   | C 24950   | HEAD - R.H. No. 1                                                                                                                                                                                          | 1     |
| 36   | C 22619   | BEARING - crankshaft, rear (.002" undersize) (0.05 mm)                                                                                                                                                     | 1     |
| 36   | C 22620   | BEARING - crankshaft, rear (.010" undersize) (0.25 mm)                                                                                                                                                     | 1     |
| 36   | C 22621   | BEARING - crankshaft, rear (.020" undersize) (0.51 mm)                                                                                                                                                     | 1     |
| 36   | C 22622   | BEARING - crankshaft, rear (.030" undersize) (0.76 mm)                                                                                                                                                     | 1     |
| 38   | 113- 132  | BOLT - valve cover 1/4" x 1-3/4" hex                                                                                                                                                                       | 2     |
| 39   | C 20517   | RETAINER - valve spring                                                                                                                                                                                    | 4     |
| 40   | C 20276   | TAPPET - valve (standard)                                                                                                                                                                                  | 4     |

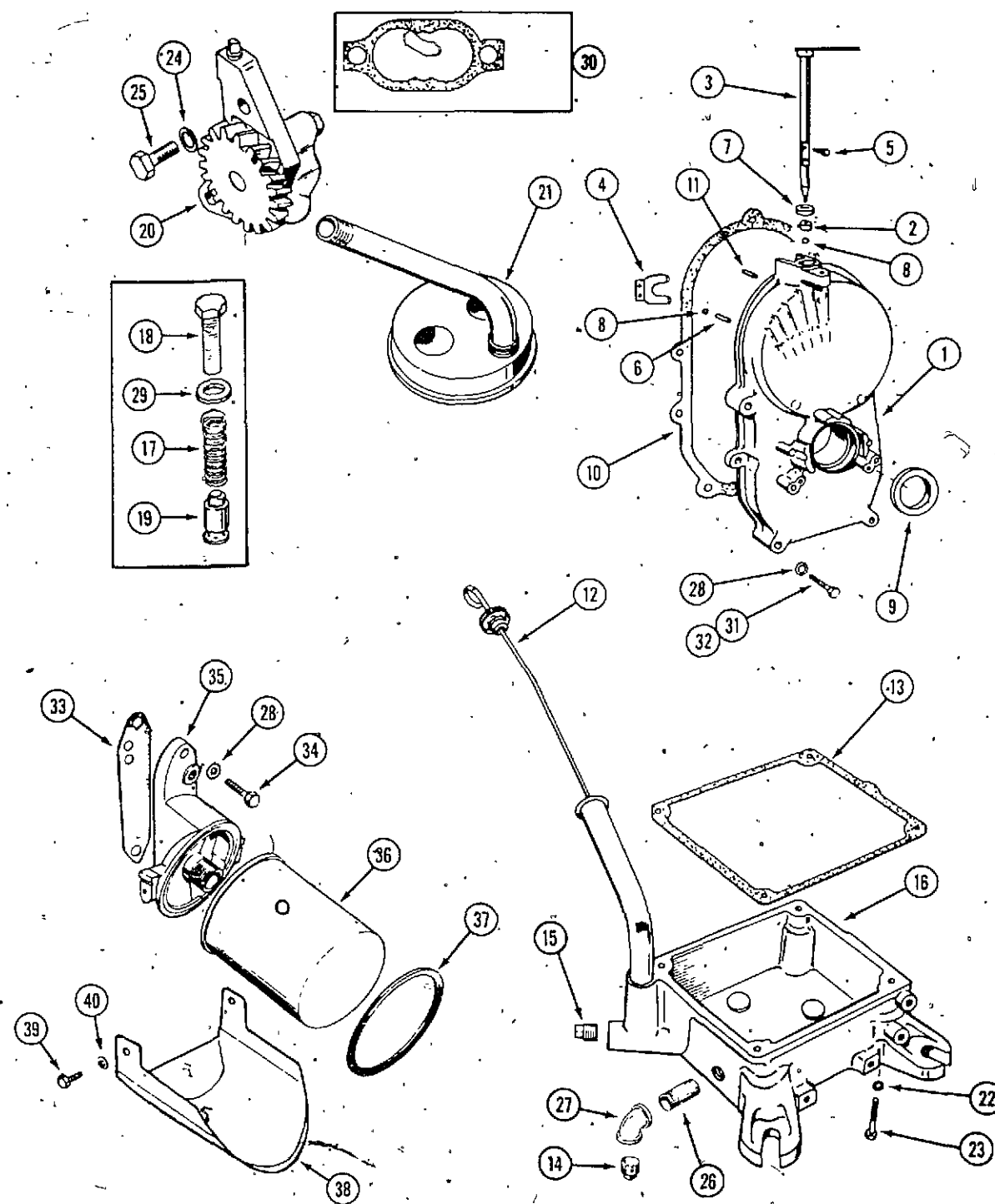


## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

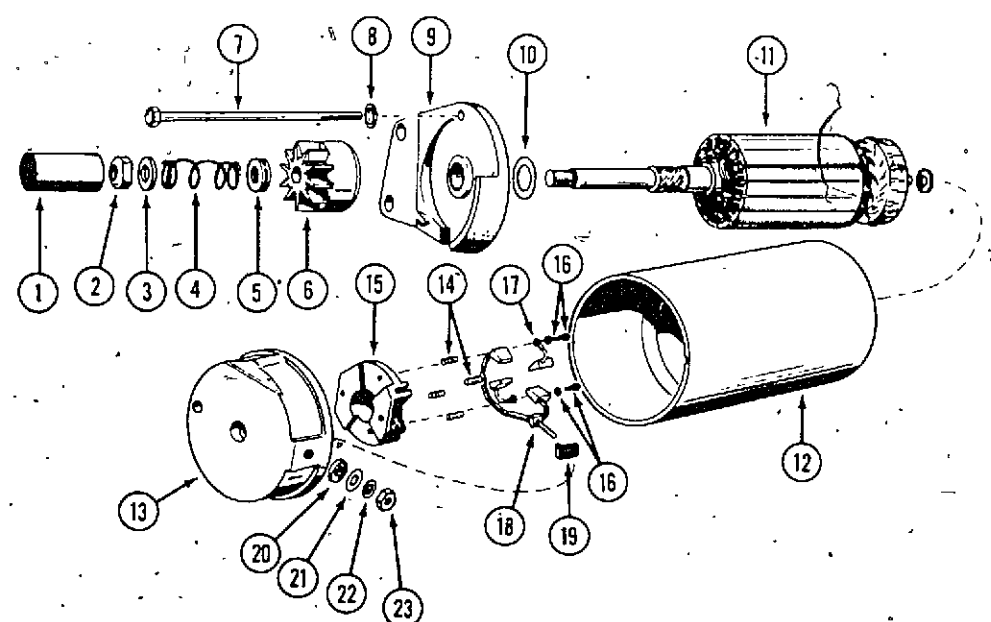
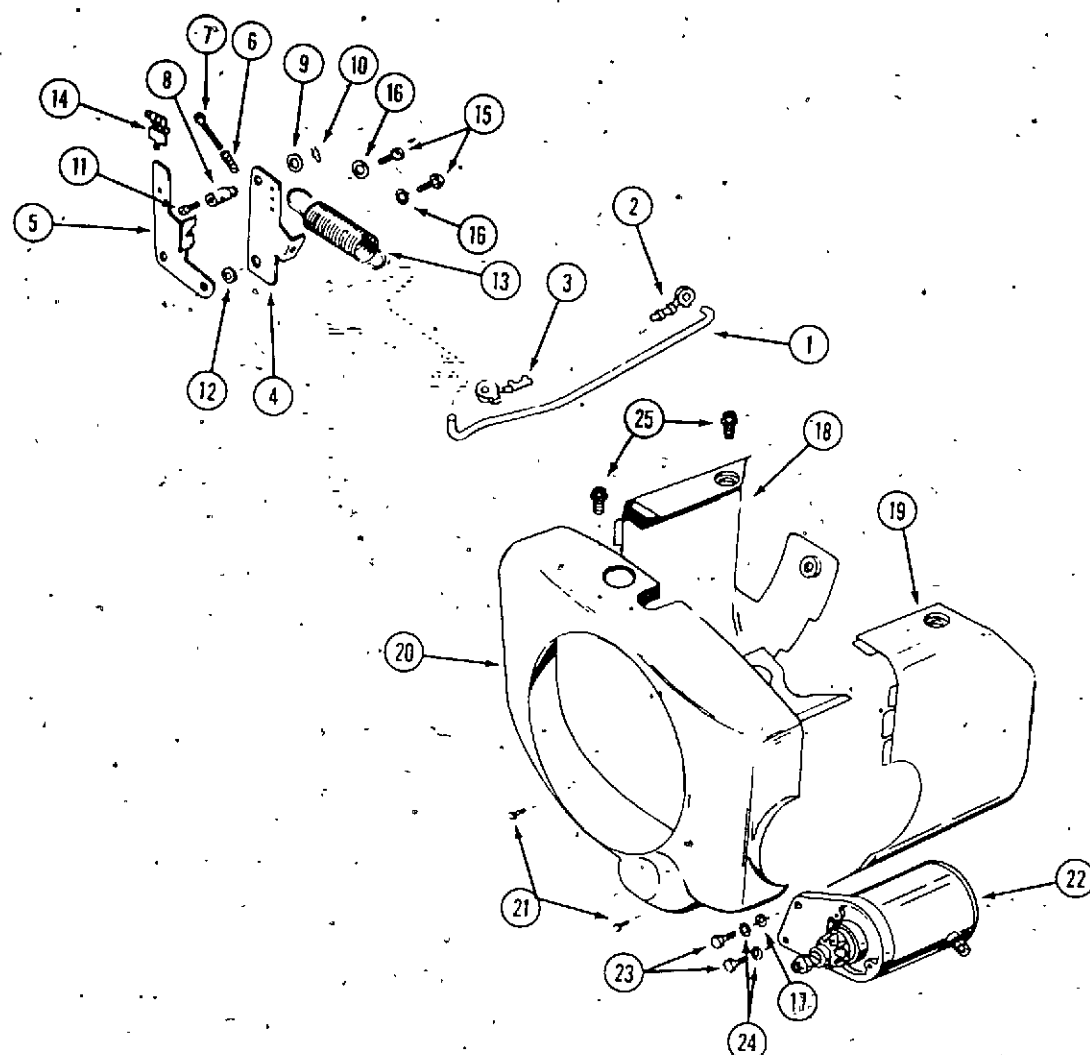
## ENGINE BLOCK AND ATTACHING PARTS

| REF. | PART NO. | DESCRIPTION                                                                                                      | REQ'D |
|------|----------|------------------------------------------------------------------------------------------------------------------|-------|
| 40   | C 20471  | TAPPET - valve (.002" oversize) (0.05 mm)                                                                        | 4     |
| 40   | C 20277  | TAPPET - valve (.005" oversize) (0.13 mm)                                                                        | 4     |
| 41   | C 29754  | VALVE - intake                                                                                                   | 2     |
| 42   | C 29755  | VALVE - exhaust                                                                                                  | 2     |
| 43   | C 20283  | INSERT - valve seat, exhaust (.002" oversize) (0.05 mm)                                                          | 2     |
| 43   | C 29976  | INSERT - valve seat, exhaust (.005" oversize) (0.13 mm)                                                          | 2     |
| 43   | C 20285  | INSERT - valve seat, exhaust (.010" oversize) (0.25)                                                             | 2     |
| 43   | C 29978  | INSERT - valve seat, exhaust (.025" oversize) (0.64 mm)                                                          | 2     |
| 44   | C 20288  | INSERT - valve seat, intake (.002" oversize) (0.05 mm)                                                           | 1     |
| 44   | C 20289  | INSERT - valve seat, intake (.005" oversize) (0.13 mm)                                                           | 2     |
| 44   | C 20290  | INSERT - valve seat, intake (.010" oversize) (0.25 mm)                                                           | 2     |
| 44   | C 20291  | INSERT - valve seat, intake (.025" oversize) (0.64 mm)                                                           | 2     |
| 45   | C 20412  | TUBE - fuel pump vacuum                                                                                          | 1     |
| 46   | C 20293  | SPRING - valve                                                                                                   | 4     |
| 47   | C 20294  | LOCK - valve and spring                                                                                          | 8     |
| 48   | C 20296  | BEARING - crankshaft, front (.002" undersize) (0.05 mm)                                                          | 1     |
| 48   | C 20297  | BEARING - crankshaft, front (.010" undersize) (0.25 mm)                                                          | 1     |
| 48   | C 20298  | BEARING - crankshaft, front (.020" undersize) (0.51 mm)                                                          | 1     |
| 48   | C 20299  | BEARING - crankshaft, front (.030" undersize) (0.76 mm)                                                          | 1     |
| 49   | 113- 204 | BOLT - 3/8" x 1/2" N.C. hex                                                                                      | 2     |
|      | C 28721  | KIT - gasket, engine                                                                                             | 1     |
|      | C 25225  | KIT - gasket, carbon removal (includes: valve cover gaskets, cylinder head gaskets, and intake manifold gaskets) | 1     |

## OIL SUMP, OIL PUMP AND GEAR COVER



| REF. | PART NO.  | DESCRIPTION                                       | REQ'D |
|------|-----------|---------------------------------------------------|-------|
| 1    | C 22631   | COVER ASSEMBLY - gear                             | 1     |
| 2    | C 20305   | BEARING - governor shaft                          | 1     |
| 3    | C 22632   | SHAFT AND ARM ASSEMBLY - governor                 | 1     |
| 4    | C 20307   | YOKE - governor shaft                             | 1     |
| 5    | 182- 84   | SCREW - yoke retaining                            | 2     |
| 6    | C 20309   | PIN - governor, cup stop                          | 1     |
| 7    | C 20310   | SEAL - oil, governor shaft                        | 1     |
| 8    | 211- 5    | BALL - governor shaft bearing                     | 2     |
| 9    | C 20312   | SEAL - gear cover                                 | 1     |
| 10   | C 20313   | GASKET - gear cover                               | 1     |
| 11   | C 23320   | PIN - gear cover 5/16" x 1-1/8"                   | 2     |
| 12   | C 24958   | DIPSTICK - oil level indicator                    | 1     |
| 13   | C 29984   | GASKET - oil pan                                  | 1     |
| 14   | NSS       | PLUG - oil sump, 1/2" square head (use 221-844)   | 1     |
| 15   | 221- 844  | PLUG - oil sump, 1/2" socket head                 | 1     |
| 16   | C 22633   | SUMP - oil                                        | 1     |
| 17   | C 20320   | SPRING - oil bypass                               | 1     |
| 18   | 114- 200  | BOLT - oil bypass 3/8" x 1" N.C. hex              | 1     |
| 19   | C 20322   | VALVE - oil bypass                                | 1     |
| 20   | C 29734   | PUMP - oil                                        | 1     |
| 21   | C 23321   | INTAKE - oil pump (includes cup, screen and pipe) | 1     |
| 22   | 192- 21   | LOCK WASHER - 3/8"                                | 4     |
| 23   | 113- 257  | BOLT - 3/8" x 2-1/2" N.C. hex                     | 4     |
| 24   | 192- 19   | LOCK WASHER - 1/4"                                | 2     |
| 25   | 113- 4    | BOLT - 1/4" x 1" N.C. hex                         | 2     |
| 26   | 221- 1190 | NIPPLE - oil drain                                | 1     |
| 27   | 221- 1377 | ELBOW - oil drain                                 | 1     |
| 28   | C 20331   | WASHER - 5/16" copper                             | 7     |
| 29   | C 20574   | WASHER - 3/8" copper                              | 1     |
| 30   | C 20325   | KIT - gasket, oil pump                            | 1     |
| 31   | 13- 528   | BOLT - 5/16" x 1-3/4"                             | 4     |
| 32   | 26- 544   | BOLT - 5/16" x 2-3/4"                             | 1     |
| 33   | C 20330   | GASKET - oil filter adapter                       | 1     |
| 34   | 113- 103  | SCREW - 5/16" - 18 x 1"                           | 2     |
| 35   | C 20565   | ADAPTER - oil filter                              | 1     |
| 36   | C 26191   | FILTER - oil                                      | 1     |
| 37   | C 20577   | SEAL - oil filter                                 | 1     |
| 38   | C 25389   | DRAIN - oil filter                                | 1     |
| 39   | 182- 525  | SCREW - No. 10 - 32 x 3/8"                        | 2     |
| 40   | 192- 18   | WASHER - No. 10                                   | 2     |



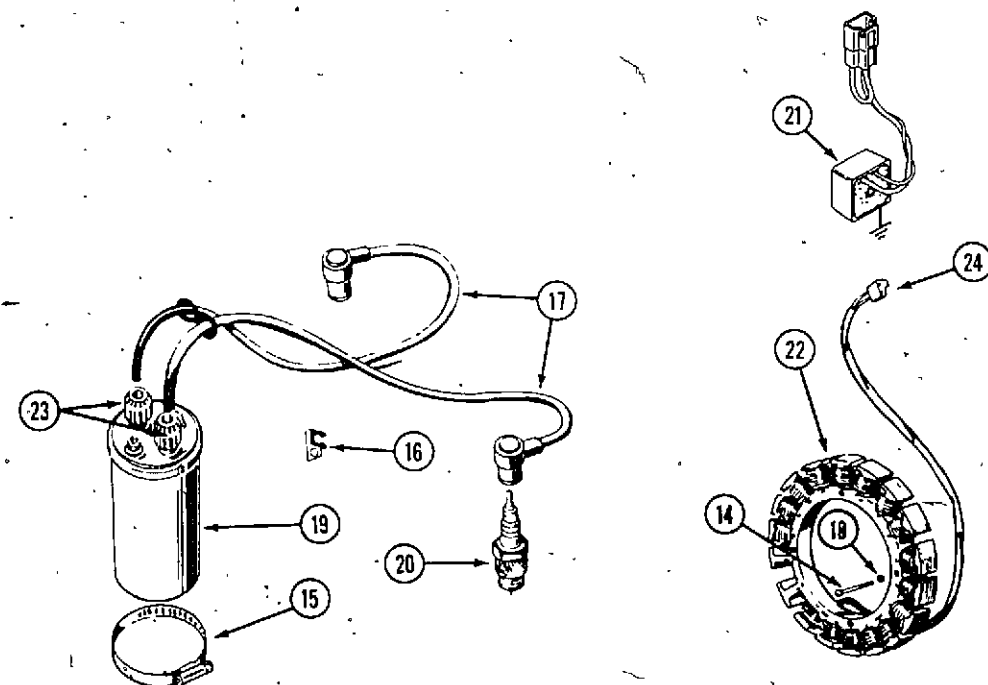
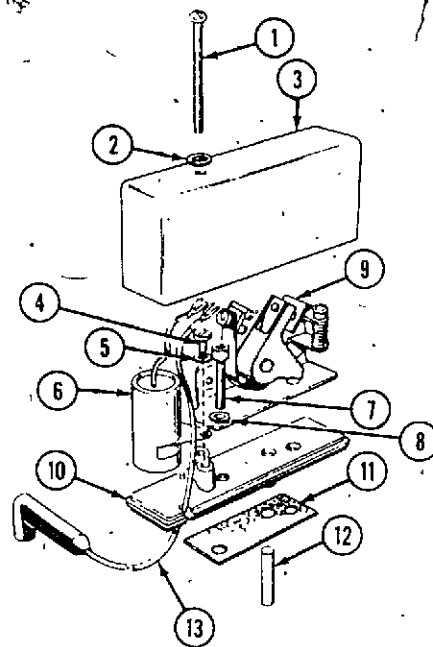
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## GOVERNOR AND BLOWER HOUSING

| REF. | PART NO.  | DESCRIPTION                                         | REQ'D |
|------|-----------|-----------------------------------------------------|-------|
| 1    | C 20359   | ROD - governor control                              | 1     |
| 2    | C 20360   | RETAINER - governor control rod, carburetor end     | 1     |
| 3    | C 20361   | RETAINER - governor control rod, governor end       | 1     |
| 4    | C 20369   | ARM - governor control                              | 1     |
| 5    | C 28719   | BRACKET - governor mounting                         | 1     |
| 6    | C 20371   | SPRING - throttle lever adjust                      | 1     |
| 7    | 182- 49   | SCREW - No. 6 - 32 x 7/8" pan-hd.                   | 1     |
| 8    | C 20372   | CLAMP - swivel, throttle                            | 1     |
| 9    | 195- 14   | WASHER - swivel clamp mounting                      | 2     |
| 10   | 136- 2    | PIN - cotter, swivel clamp mounting                 | 1     |
| 11   | 169- 131  | SCREW - No. 8 x 5/16", swivel clamp                 | 1     |
| 12   | C 20375   | BUSHING - governor control                          | 1     |
| 13   | C 20376   | SPRING - governor                                   | 1     |
| 14   | NSS       | RETAINER - throttle cable (use C29506 and 187-1511) | 1     |
| 15   | 121- 3    | BOLT - 1/4" - 20 x 1/2"                             | 2     |
| 17   | 195- 2027 | WASHER - 5/16"                                      | 2     |
| 18   | C 24951   | BAFFLE - cylinder air, R.H.                         | 1     |
| 19   | C 25778   | BAFFLE - cylinder air, L.H.                         | 1     |
| 20   | C 25779   | HOUSING - blower                                    | 1     |
| 21   | 163- 22   | BOLT - 1/4" x 7/16" N.C. hex                        | 7     |
| 22   | C 29733   | MOTOR - starting, 12 volt (see below)               | 1     |
| 23   | 113- 103  | BOLT - 5/16" x 1" N.C. hex, starter motor           | 2     |
| 24   | 192- 20   | LOCK WASHER - 5/16"                                 | 2     |
| 25   | 187- 1147 | BOLT                                                | 4     |

## C29733 STARTER MOTOR

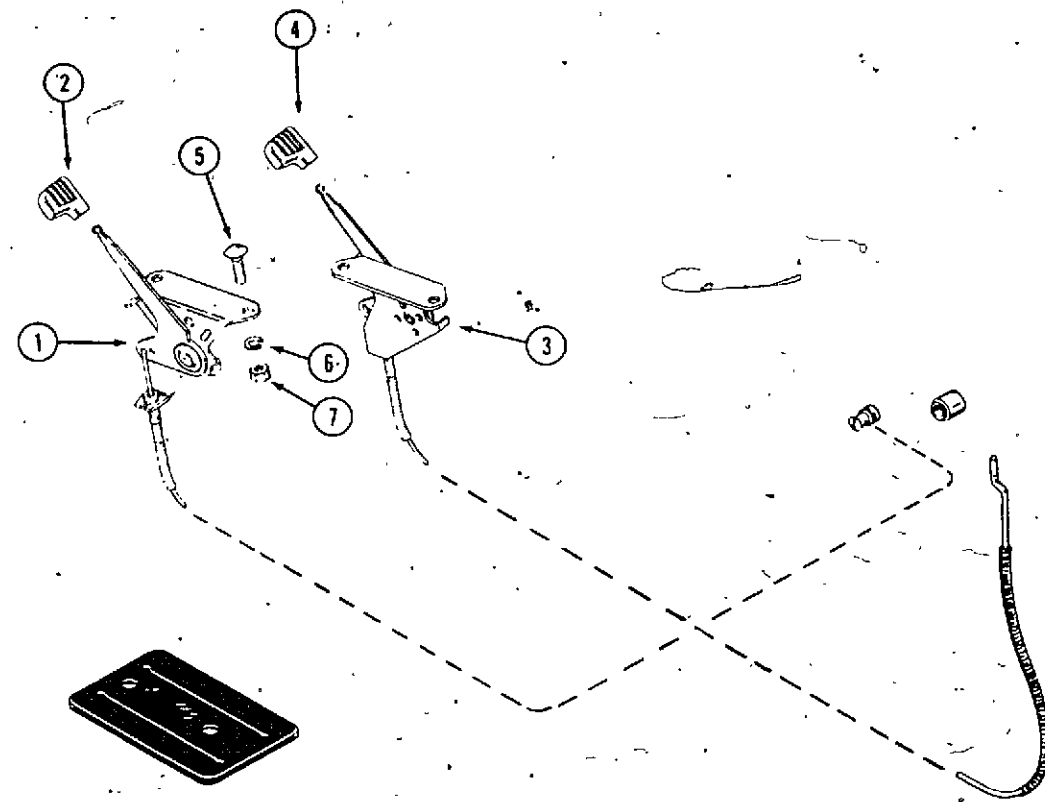
|             |                                                          |   |
|-------------|----------------------------------------------------------|---|
| C 26508     | KIT - cover and drive retainers                          | 1 |
| 1 NSS       | COVER - dust                                             | 1 |
| 2 NSS       | NUT - stop                                               | 1 |
| 3 NSS       | WASHER - stop nut                                        | 1 |
| 4 NSS       | SPRING - tension                                         | 1 |
| 5 NSS       | SPACER - dust cover                                      | 1 |
| 6 C 20274   | DRIVE ASSEMBLY                                           | 1 |
| 7 C 20278   | BOLT - through                                           | 2 |
| 8 192- 19   | LOCK WASHER - through bolt                               | 2 |
| 9 C 20333   | CAP ASSEMBLY - drive end                                 | 1 |
| 10 C 20334  | WASHER - thrust, armature                                | 1 |
| 11 C 20335  | ARMATURE - starter motor                                 | 1 |
| 12 NSS      | HOUSING - starter, order C29733 starter                  | 1 |
| 13 C 20336  | CAP ASSEMBLY - commutator (includes items 14 through 23) | 1 |
| 14 NSS      | SPRING - brush                                           | 4 |
| 15 NSS      | HOLDER - brush                                           | 1 |
| 16 NSS      | SCREW AND LOCK WASHER - brush mounting                   | 2 |
| 17 NSS      | BRUSH - ground                                           | 2 |
| 18 NSS      | STUD AND BRUSH ASSEMBLY                                  | 2 |
| 19 NSS      | BUSHING - insulating                                     | 1 |
| 20 NSS      | WASHER - insulating                                      | 1 |
| 21 NSS      | WASHER - stud mounting                                   | 1 |
| 22 NSS      | LOCK WASHER - stud mounting                              | 1 |
| 23 NSS      | NUT - stud mounting                                      | 1 |
| C 20337     | KIT - brush and spring (includes items 14, 17 and 18)    | 1 |
| 24 193- 57  | LOCK WASHER - external (both 1/4")                       | 1 |
| 25 129- 101 | NUT - 1/4" - 20                                          | 1 |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## IGNITION AND CHARGING SYSTEMS

| REF. | PART NO. | DESCRIPTION                                 | REQ'D |
|------|----------|---------------------------------------------|-------|
|      | C 29990  | BREAKER CONTACT ASSEMBLY                    | 1     |
| 1    | 182- 520 | SCREW - No. 10 - 24 x 1-1/2"                | 1     |
| 2    | 195- 513 | WASHER - No. 10                             | 1     |
| 3    | C 23854  | COVER - breaker box                         | 1     |
| 4    | 182- 545 | SCREW - No. 8 - 32 x 5/16" self-tapping     | 1     |
| 5    | 192- 16  | LOCK WASHER - No. 8                         | 1     |
| 6    | C 29991  | CONDENSER - ignition                        | 1     |
| 7    | 165- 143 | SCREW - 1/4" - 20 x 3/4"                    | 2     |
| 8    | 192- 402 | LOCK WASHER - 1/4"                          | 2     |
| 9    | C 29736  | CONTACTS - breaker                          | 1     |
| 10   | C 25100  | BASE - breaker box                          | 1     |
| 11   | C 20345  | GASKET - breaker box                        | 1     |
| 12   | C 20347  | PLUNGER - breaker box                       | 1     |
| 13   | C 29992  | LEAD - breaker to coil negative             | 1     |
| 14   | 173- 210 | SCREW - No. 10 x 1-3/8" round head, machine | 3     |
| 15   | 214- 259 | CLAMP - coil mounting                       | 1     |
| 16   | C 20344  | RETAINER - spark plug cables                | 1     |
| 17   | C 29993  | KIT - spark plug cable                      | 2     |
| 18   | 192- 18  | LOCK WASHER - No. 10                        | 3     |
| 19   | C 29752  | COIL - ignition                             | 1     |
| 20   | C 25845  | SPARK PLUG                                  | 2     |
| 21   | C 27509  | REGULATOR/RECTIFIER - 12 volt               | 1     |
| 22   | C 24956  | STATOR - alternator charging                | 1     |
| 23   | C 25227  | CAP - coil                                  | 2     |
| 24   | C 25338  | CONNECTOR - stator                          | 1     |



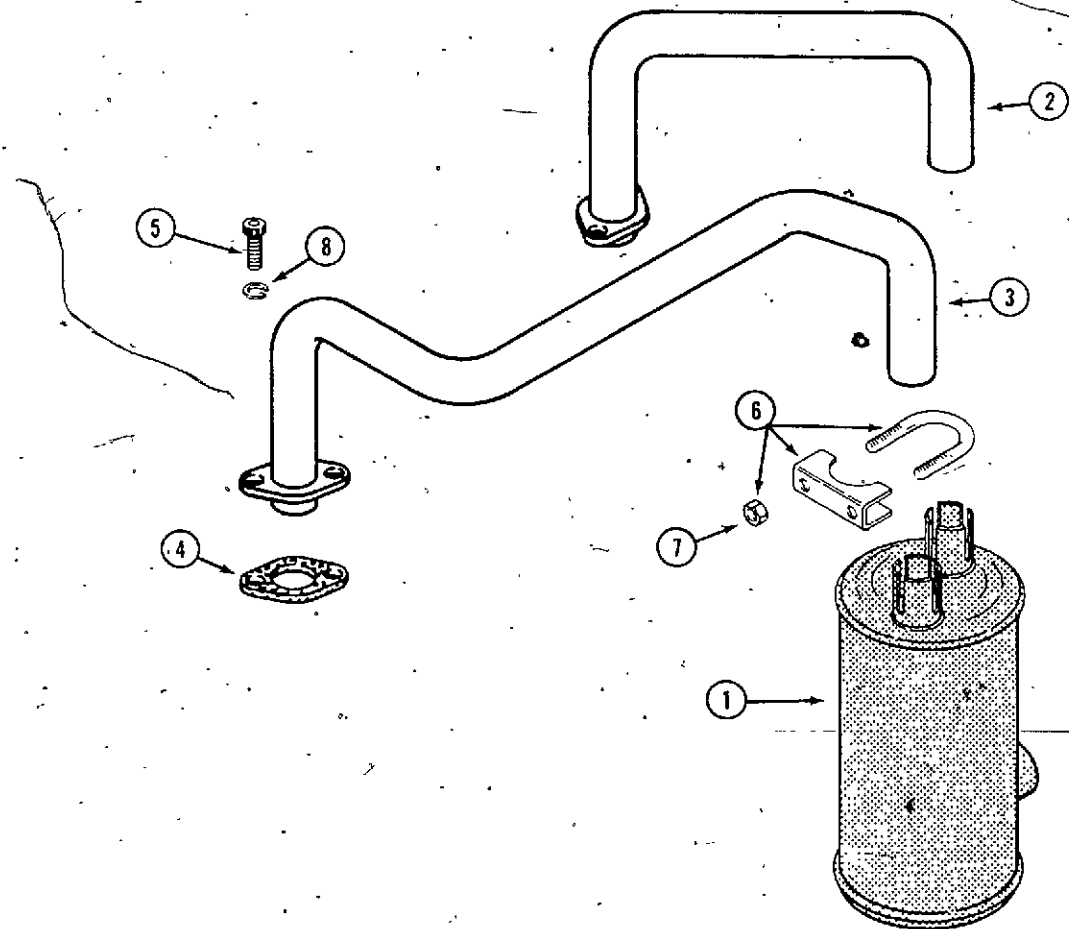
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

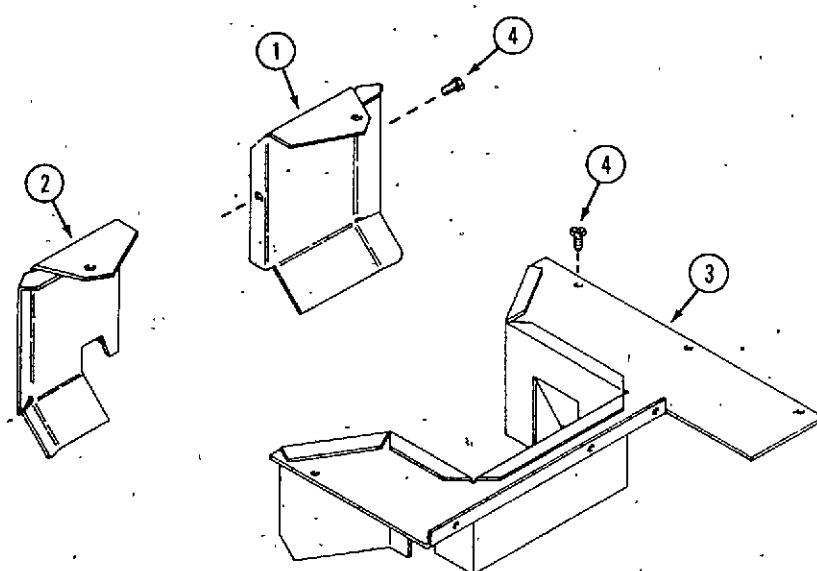
## CHOKE AND THROTTLE

| REF. | PART NO. | DESCRIPTION                                    | REQ'D |
|------|----------|------------------------------------------------|-------|
| 1    | C 25603  | CONTROL - throttle                             | 1     |
| 2    | C 30073  | HANDLE - throttle control                      | 1     |
| 3    | C 25604  | CONTROL - choke                                | 1     |
| 4    | C 30074  | HANDLE - control choke                         | 1     |
| 5    | 111- 5   | BOLT - #10 - 24 x 5/8" round head, square neck | 2     |
| 6    | 192- 18  | LOCK WASHER - #10                              | 2     |
| 7    | 129- 17  | NUT - #10 - 24 hex                             | 2     |
| 8    | C 23032  | PAD - mounting, choke and throttle             | 1     |

## EXHAUST SYSTEM

|   |          |                                    |   |
|---|----------|------------------------------------|---|
| 1 | C 20109  | MUFFLER - exhaust                  | 1 |
| 2 | C 25946  | PIPE - exhaust L.H.                | 1 |
| 3 | C 25944  | PIPE - exhaust R.H.                | 1 |
| 4 | C 26207  | GASKET - exhaust pipe              | 2 |
| 5 | 61- 512  | BOLT - 5/16" x 3/4" NC socket head | 4 |
| 6 | C 28294  | CLAMP - muffler                    | 2 |
| 7 | 129- 102 | NUT - 5/16" NC hex                 | 4 |
| 8 | 192- 404 | LOCK WASHER - 5/16"                | 4 |



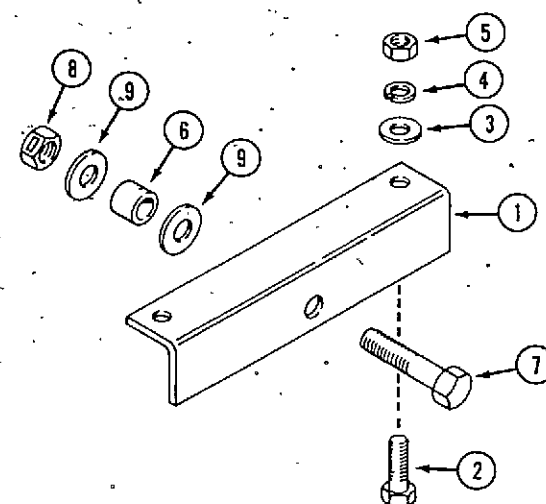


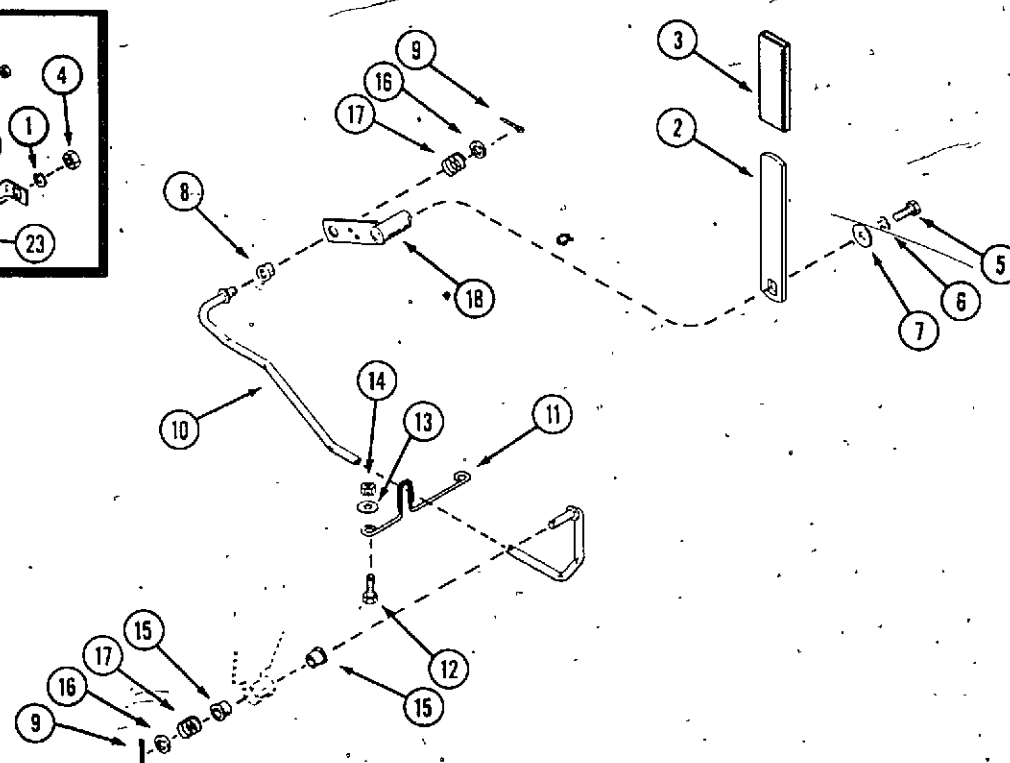
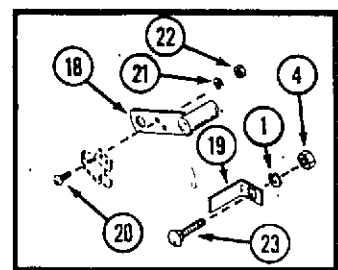
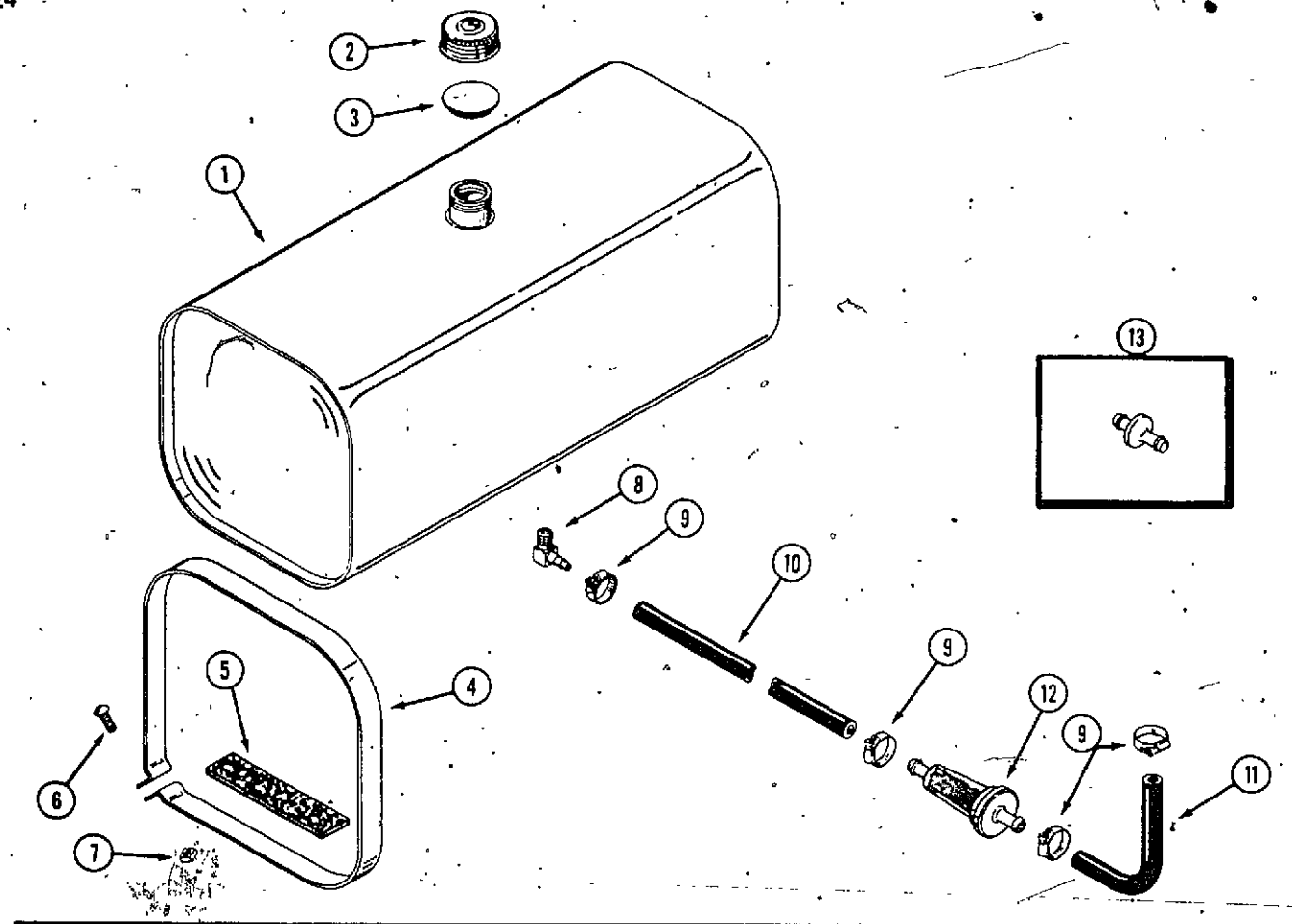
## BAFFLES AND SHIELDS

| REF. | PART NO.  | DESCRIPTION                           | REQ'D |
|------|-----------|---------------------------------------|-------|
| 1    | C 28033   | BAFFLE - heat, L.H. cylinder          | 1     |
| 2    | C 28034   | BAFFLE - heat, R.H. cylinder          | 1     |
| 3    | C 25976   | SHIELD - exhaust pipes                | 1     |
| 4    | 187- 1036 | SCREW - 1/4" - 20 x 1/2" self-tapping | 6     |

## REAR ENGINE MOUNTS

|   |           |                           |   |
|---|-----------|---------------------------|---|
| 1 | C 22949   | MOUNT - engine, rear      | 1 |
| 2 | 113- 208  | BOLT - 3/8" - 16 x 1-1/4" | 2 |
| 3 | 195- 525  | WASHER - 3/8"             | 2 |
| 4 | 192- 21   | LOCK WASHER - 3/8"        | 2 |
| 5 | 129- 103  | NUT - 3/8" - 16           | 2 |
| 6 | C 21652   | BUSHING - mount           | 1 |
| 7 | 113- 441  | BOLT - 1/2" - 13 x 2-1/4" | 1 |
| 8 | 131- 1182 | NUT - lock 1/2" - 13      | 1 |
| 9 | 195- 533  | WASHER - 1/2"             | 1 |





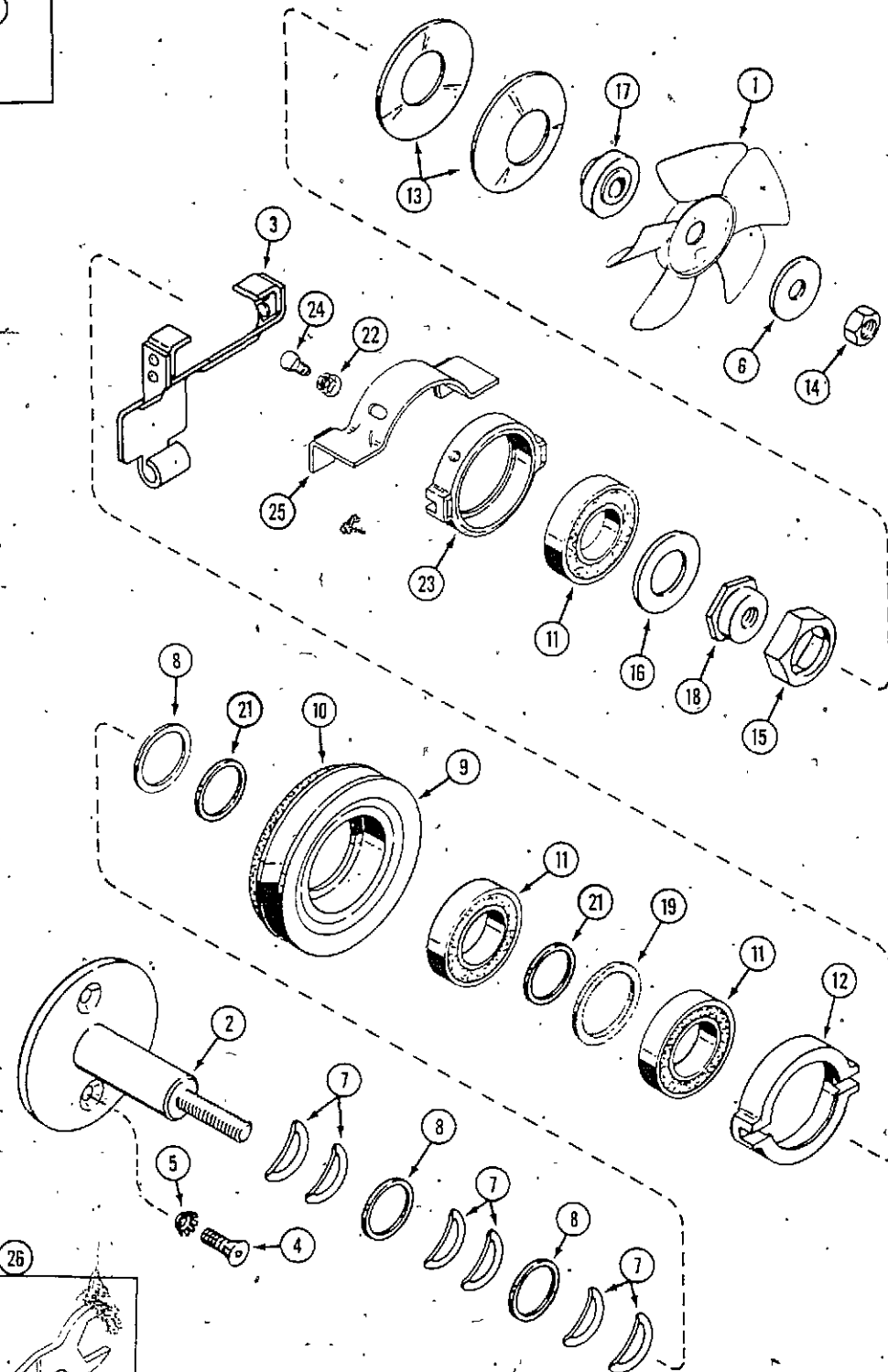
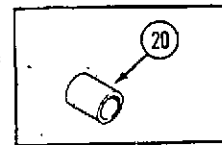
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## FUEL SYSTEM

| REF. | PART NO. | DESCRIPTION                                                 | REQ'D |
|------|----------|-------------------------------------------------------------|-------|
| 1    | C 18133  | TANK - fuel (use before S/N 14076853) shown                 | 1     |
| 1    | C 26522  | TANK - fuel (use S/N 14076853 and after)                    | 1     |
| 2    | C 11529  | CAP - fuel tank                                             | 1     |
| 3    | C 11545  | INSERT - fuel cap                                           | 1     |
| 4    | C 18190  | STRAP - tank mtg. (use before S/N 14076853)                 | 2     |
| 5    | C 14690  | CUSHION - fuel tank                                         | 4     |
| 6    | 182- 209 | SCREW - 1/4" x 1-1/2" round hd. machine                     | 2     |
| 7    | 129- 504 | NUT - 1/4" NC square                                        | 2     |
| 8    | C 10678  | ELBOW - fuel tank                                           | 1     |
| 9    | 214- 251 | CLAMP - hose                                                | 4     |
| 10   | NSS      | HOSE - fuel line 45" (1143 mm) (use C28937 cut to length)   | 1     |
| 11   | NSS      | HOSE - fuel line 5-1/4" (127 mm) (use C28937 cut to length) | 1     |
| 12   | C 28935  | FILTER - fuel                                               | 1     |
| 13   | C 26143  | VALVE - fuel check (optional)                               | 1     |

## PTO CLUTCH LINKAGE (648)

|    |           |                                        |   |
|----|-----------|----------------------------------------|---|
| 1  | 192- 21   | LOCK WASHER - 3/8"                     | 1 |
| 2  | C 17679   | HANDLE - clutch engaging               | 1 |
| 3  | C 14728   | GRIP - clutch handle                   | 1 |
| 4  | 129- 103  | NUT - 3/8"                             | 1 |
| 5  | 113- 102  | BOLT - 5/16" x 3/4" NC hex             | 1 |
| 6  | 192- 20   | LOCK WASHER - 5/16"                    | 1 |
| 7  | 195- 2175 | WASHER - 5/16"                         | 1 |
| 8  | C 20093   | BUSHING - fliplock                     | 1 |
| 9  | 132- 310  | PIN - cotter 1/8" x 1"                 | 2 |
| 10 | C 27735   | ROD - clutch                           | 1 |
| 11 | C 19767   | GUIDE - clutch rod                     | 1 |
| 12 | 113- 207  | BOLT - 3/8" x 1" NC hex                | 2 |
| 13 | 195- 525  | WASHER - 3/8"                          | 2 |
| 14 | 131- 1181 | NUT - lock 3/8" NC hex                 | 2 |
| 15 | C 20053   | BUSHING - nylon                        | 2 |
| 16 | C 14906   | WASHER - 3/8" nylon (early production) | 2 |
| 17 | C 19867   | SPRING - clutch rod (early production) | 2 |
| 18 | C 23743   | ARM - clutch pivot                     | 1 |
| 19 | C 23440   | ACTIVATOR - switch                     | 1 |
| 20 | 182- 528  | SCREW - #10 - 32 x 1 1/2"              | 2 |
| 21 | 192- 18   | LOCK WASHER - #10                      | 2 |
| 22 | 129- 37   | NUT - #10 - 32                         | 2 |
| 23 | 111- 340  | BOLT - 3/8" x 3/4" rd. head sq. neck   | 1 |
| 24 | 132- 320  | PIN - cotter 3/32" x 3/4"              | 2 |



## CLUTCH ASSEMBLY (PTO) (648)

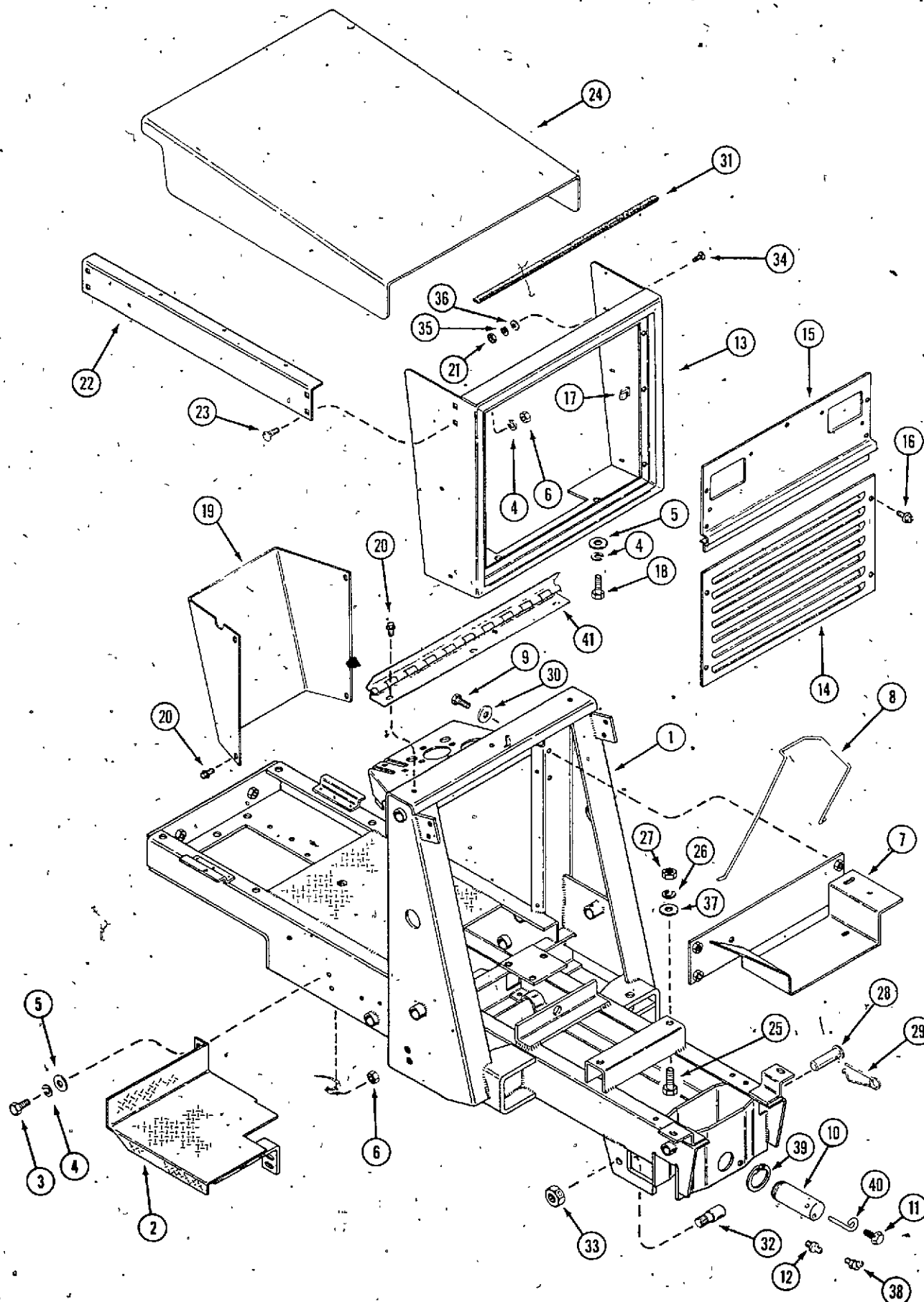
| REF. | PART NO. | DESCRIPTION                                             | REQ'D |
|------|----------|---------------------------------------------------------|-------|
|      | C 27152  | KIT - clutch and fan assembly (use before S/N 14045699) | 1     |
|      | C 31026  | CLUTCH AND FAN ASSEMBLY - use S/N 14045699 and after    | 1     |
| 1    | C 16616  | FAN - cooling                                           | 1     |
| 2    | C 24741  | HUB - clutch                                            | 1     |
| 3    | C 27031  | KIT - engaging arm (use before S/N 14045699)            | 1     |
| 3    | C 26166  | ARM - engaging (use S/N 14045699 and after)             | 1     |
| 4    | 164- 41  | SCREW - 5/16" - 18 x 1" flat head socket                | 2     |
| 5    | 193- 76  | LOCK WASHER - 5/16" special external tooth              | 2     |
| 6    | C 28677  | WASHER - fan 17/32"                                     | 1     |
| 7    | C 15515  | WASHER - spring                                         | 6     |
| 8    | C 15557  | WASHER - spacer .050                                    | 3     |
| 9    | C 31045  | PULLEY AND DISC ASSEMBLY                                | 1     |
| 10   | C 23740  | KIT - friction disc                                     | 1     |
| 11   | C 29735  | BEARING - ball                                          | 3     |
| 12   | C 23033  | CAM - clutch                                            | 2     |
| 13   | C 16786  | SPRING - clutch load                                    | 2     |
| 14   | 129- 125 | NUT - 1/2" N.F.                                         | 1     |
| 15   | C 23627  | GUIDE - adjusting nut                                   | 1     |
| 16   | C 23624  | WASHER - spacer                                         | 1     |
| 17   | C 23630  | SPACER - hub                                            | 1     |
| 18   | C 23625  | NUT - adjust                                            | 1     |
| 19   | NSS**    | SPACER - washer .200" (use before S/N 14030157)         | 1     |
| 21   | C 29811* | SPACER - washer .100" (use S/N 14030157 and after)      | 1     |
| 22   | 131- 934 | NUT - 1/4" - 20 flange lock                             | 2     |
| 23   | C 31019  | CAM - clutch                                            | 1     |
| 24   | 113- 3   | BOLT - 1/4" - 20 x 3/4"                                 | 2     |
| 25   | C 31018  | CLEVIS - PTO brake                                      | 1     |
| 26   | C 29772  | WRENCH - clutch adjust                                  | 1     |

## FAN AND HUB ASSEMBLY (648BH)

|    |          |                                           |   |
|----|----------|-------------------------------------------|---|
| 1  | C 16616  | FAN - cooling                             | 1 |
| 2  | C 24741  | HUB - clutch                              | 1 |
| 4  | 164- 41  | SCREW - 5/16" - 18 x 1" flat head, socket | 2 |
| 5  | 193- 76  | WASHER - 5/16" external lock              | 2 |
| 6  | C 28677  | WASHER - fan 17/32"                       | 1 |
| 14 | 129- 125 | NUT - 1/2" N.F.                           | 1 |
| 17 | C 23630  | SPACER - hub                              | 1 |
| 20 | C 21652  | BUSHING - spacer                          | 1 |

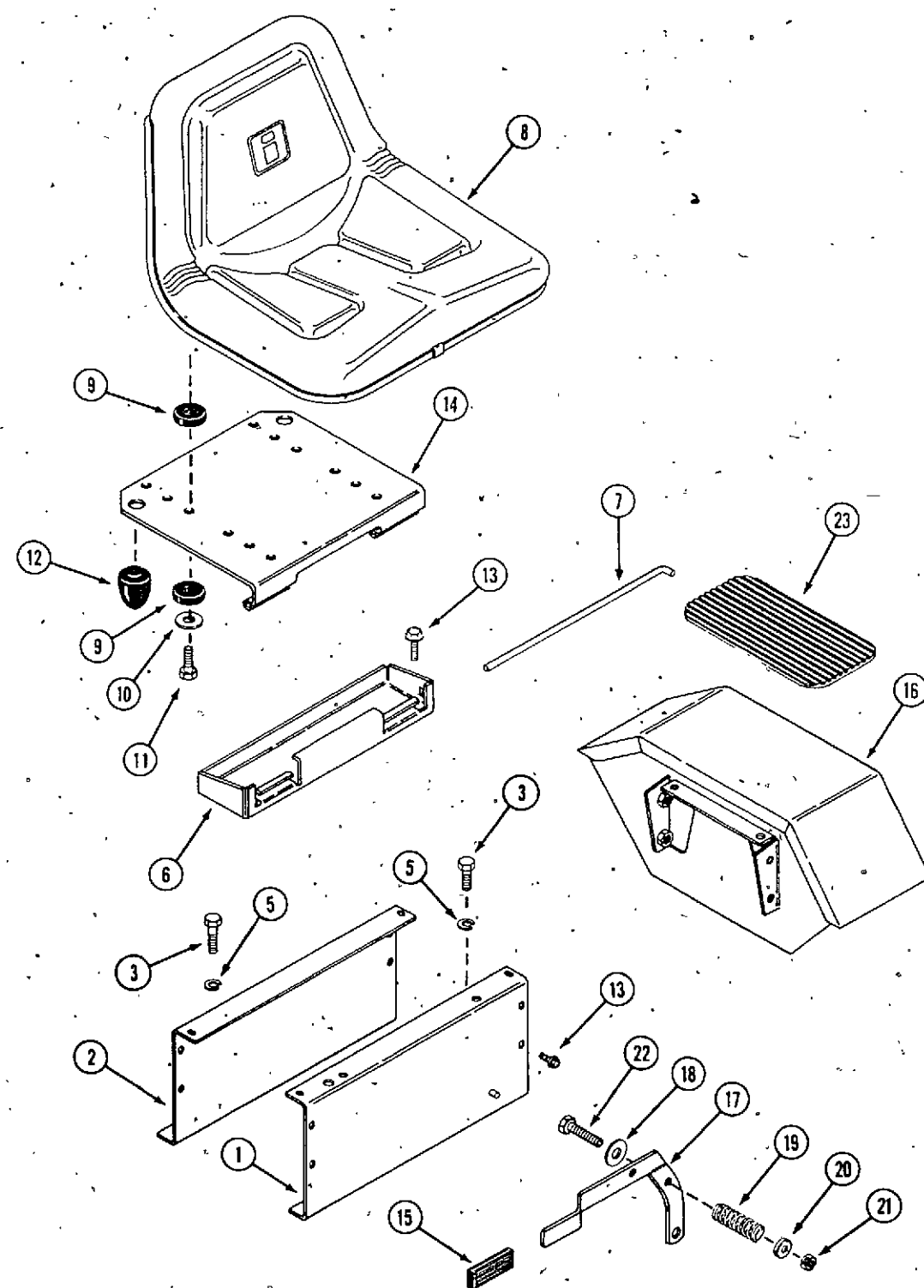
\*Some units use (2) .050" spacers.  
Use C29811 for service.

\*\*Some units use (3 or 4) .050" spacers.  
Use (2) C29811 for service.



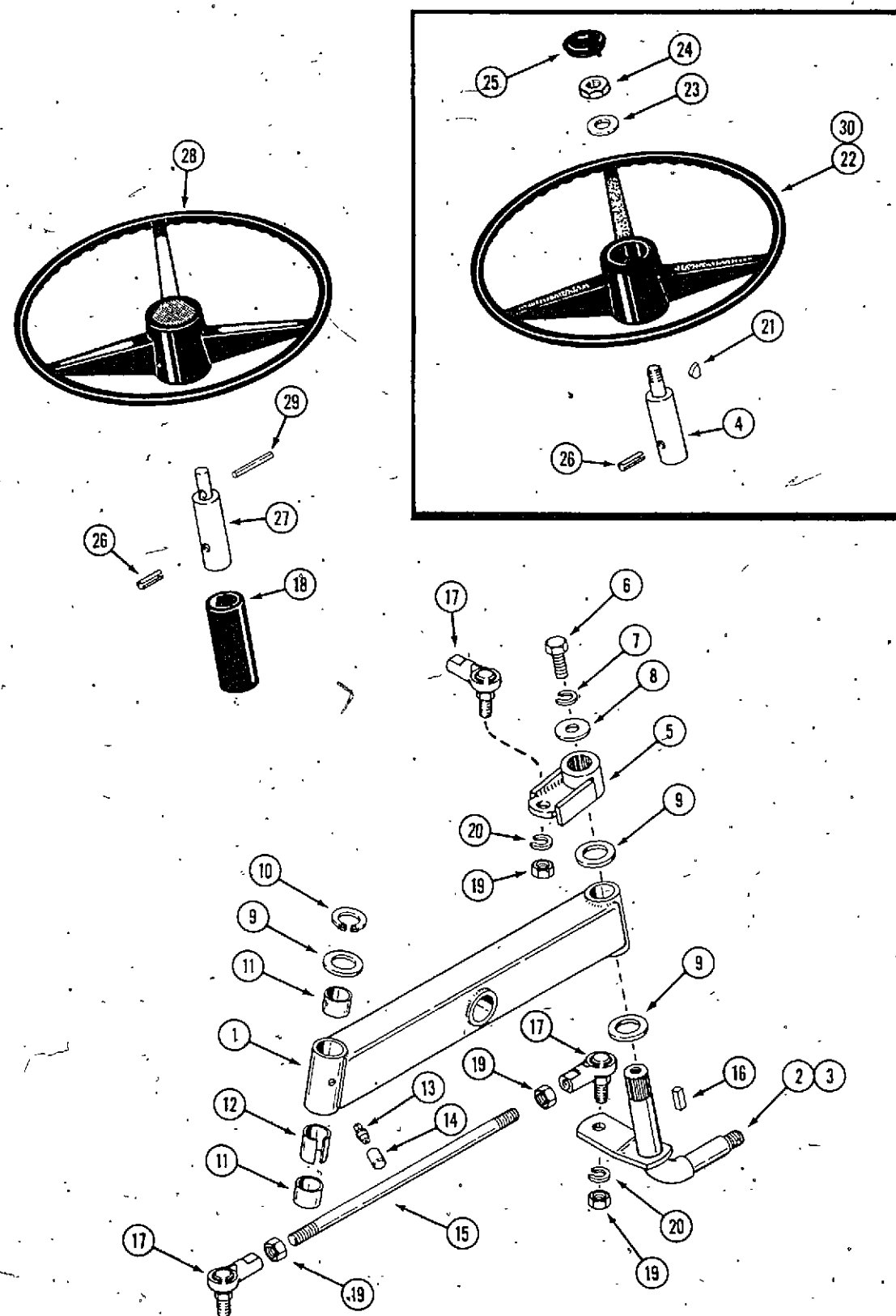
## HOOD, FRAME AND GRILLE

| REF. | PART NO.  | DESCRIPTION                                                            | REQ'D |
|------|-----------|------------------------------------------------------------------------|-------|
| 1    | NSS       | FRAME - main 648 (contact Ingersoll Service Parts for availability)    | 1     |
| 1    | NSS       | FRAME - main 648BH (contact Ingersoll Service Parts for availability)  | 1     |
| 2    | C 25933   | PAD - foot, L.H.                                                       | 1     |
| 2    | C 25935   | PAD - foot, R.H.                                                       | 1     |
| 3    | 113- 207  | BOLT - 3/8" x 1" NC hex                                                | 8     |
| 4    | 192- 21   | LOCK WASHER - 3/8"                                                     | 18    |
| 5    | 195- 104  | WASHER - 3/8"                                                          | 6     |
| 6    | 129- 103  | NUT - 3/8" NC hex                                                      | 10    |
| 7    | C 25969   | TRAY - battery                                                         | 1     |
| 8    | C 16239   | STRAP - battery hold down                                              | 1     |
| 9    | 113- 102  | BOLT - 5/16" x 3/4" NC hex                                             | 4     |
| 10   | C 29759   | PIN - axle pivot (also use C29760, C22278, 219-55 before S/N 14098406) | 1     |
| 11   | 187- 1910 | BOLT - 3/8" x 3/4" NC hex head                                         | 1     |
| 12   | 219- 17   | FITTING - lube (use before S/N 14045712)                               | 1     |
| 13   | C 25971   | FRAME - grille                                                         | 1     |
| 14   | C 19375   | INSERT - grille                                                        | 1     |
| 15   | C 21545   | PANEL - headlight                                                      | 1     |
| 16   | 187- 1036 | BOLT - 1/4" x 1/2" NC hex slotted                                      | 9     |
| 17   | C 17653   | NUT - 1/4" tinnerman                                                   | 9     |
| 18   | 113- 206  | BOLT - 3/8" x 3/4" NC hex                                              | 2     |
| 19   | C 17647   | PANEL - dash                                                           | 1     |
| 20   | 187- 1036 | BOLT - 1/4" x 1/2" NC hex self tapping                                 | 7     |
| 21   | 129- 37   | NUT - #10                                                              | 3     |
| 22   | C 25975   | SUPPORT - grille                                                       | 2     |
| 23   | 111- 340  | BOLT - 3/8" x 3/4" NC round head, square neck                          | 8     |
| 24   | C 25973   | HOOD                                                                   | 1     |
| 25   | 113- 208  | BOLT - 3/8" - 16 x 1-1/4" (engine mounting)                            | 4     |
| 26   | 192- 21   | LOCK WASHER - 3/8"                                                     | 4     |
| 27   | 129- 103  | NUT - 3/8" - 16 NC hex                                                 | 4     |
| 28   | C 18055   | PIN - latch                                                            | 2     |
| 29   | C 10898   | PIN - safety                                                           | 2     |
| 30   | 195- 521  | WASHER - 5/16"                                                         | 4     |
| 31   | C 21638   | STRIP - seal                                                           | 1     |
| 32   | C 27508   | PIN - attachment                                                       | 2     |
| 33   | 131- 1318 | NUT - lock 1/2" NF jam                                                 | 2     |
| 34   | 182- 528  | SCREW - #10 x 1/2" pan head                                            | 3     |
| 35   | 192- 18   | LOCK WASHER - #10                                                      | 3     |
| 36   | 195- 513  | WASHER - #10                                                           | 3     |
| 37   | 195- 525  | WASHER - 3/8"                                                          | 4     |
| 38   | 219- 55   | FITTING - lube 90° (use S/N 14045712 and after)                        | 1     |
| 39   | C 29760   | RING - retaining (use S/N 14098406 and after)                          | 1     |
| 40   | C 22278   | PIN - retaining (use S/N 14098406 and after)                           | 1     |
| 41   | C 21540   | HINGE - hood                                                           | 1     |



## SEAT, FENDERS AND TOOL TRAY

| REF. | PART NO.  | DESCRIPTION                                                                               | REQ'D |
|------|-----------|-------------------------------------------------------------------------------------------|-------|
| 1    | C 17488   | SUPPORT - seat, front                                                                     | 1     |
| 2    | C 26698   | SUPPORT - seat, rear                                                                      | 1     |
| 3    | 113- 424  | BOLT - 1/2" x 1" NC hex                                                                   | 4     |
| 5    | 192- 23   | LOCK WASHER - 1/2"                                                                        | 4     |
| 6    | C 26028   | TRAY - tool                                                                               | 1     |
| 7    | C 16429   | PIN - seat hinge                                                                          | 1     |
| 8    | C 30067   | SEAT - black                                                                              | 1     |
| 8    | C 26909   | SEAT - brown                                                                              | 1     |
| 9    | C 15410   | CUSHION - rubber                                                                          | 8     |
| 10   | 195- 2175 | WASHER - 5/16" x 1-1/4" O.D.                                                              | 4     |
| 11   | 113- 122  | BOLT - 5/16" x 1-1/2" NC hex                                                              | 4     |
| 12   | C 14534   | BUMPER - seat (use before S/N 14076863)                                                   | 2     |
| 13   | 121- 106  | BOLT - 5/16" x 1/2" NC hex flange                                                         | 14    |
| 14   | NSS       | HINGE - seat (before S/N 14076863 use C29307 and (2) of C29305, C29306, 113-102, 131-911) | 1     |
| 14   | C 29307   | HINGE - seat (used S/N 14076863 and after)                                                | 1     |
| 15   | C 14728   | GRIP - shift lever                                                                        | 1     |
| 16   | C 17456   | FENDER - L.H. (648)                                                                       | 1     |
| 16   | C 17457   | FENDER - R.H. (648)                                                                       | 1     |
| 16   | C 22850   | FENDER - L.H. (648BH)                                                                     | 1     |
| 16   | C 22849   | FENDER - R.H. (648BH)                                                                     | 1     |
| 17   | C 17491   | LEVER - shift                                                                             | 1     |
| 18   | 195- 525  | WASHER - 3/8" x 1-1/8"                                                                    | 1     |
| 19   | C 17216   | SPRING - shift lever                                                                      | 1     |
| 20   | C 17066   | WASHER - cupped                                                                           | 1     |
| 21   | 131- 1181 | NUT - lock 3/8" NC hex                                                                    | 1     |
| 22   | 113- 257  | BOLT - 3/8" x 2-1/2" NC hex                                                               | 1     |
| 23   | C 26092   | PAD - step, fender (648BH)                                                                | 2     |
| 24   | C 29305   | CAP - spring (use S/N 14076863 and after)                                                 | 2     |
| 25   | C 29306   | SPRING - seat (use S/N 14076863 and after)                                                | 2     |
| 26   | 113- 102  | BOLT - 5/16" - 18 x 3/4"                                                                  | 2     |
| 27   | 131- 911  | NUT - 5/16" - 18 flange lock                                                              | 2     |

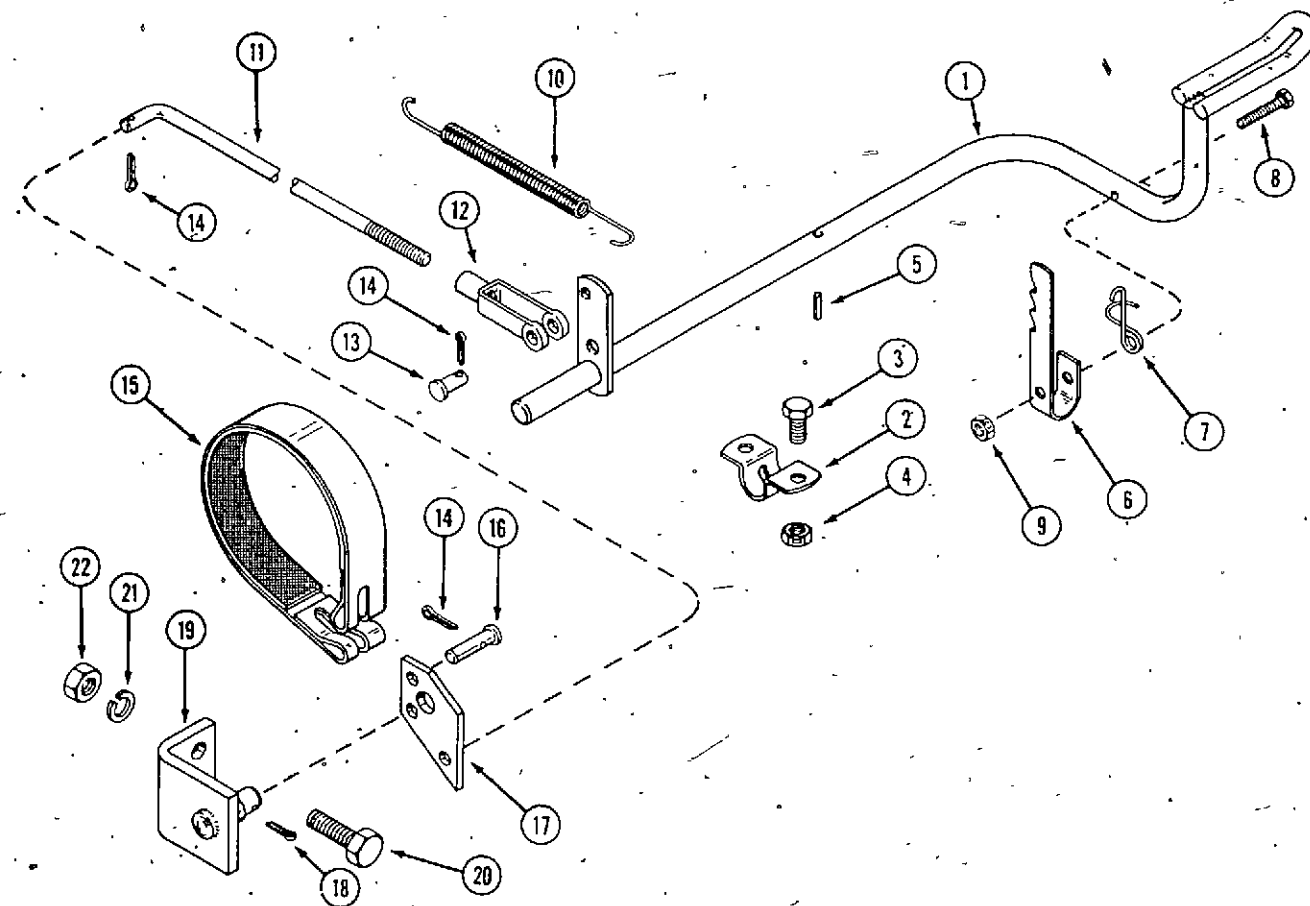


## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## FRONT AXLE AND STEERING WHEEL

| REF. | PART NO.  | DESCRIPTION                                                                 | REQ'D |
|------|-----------|-----------------------------------------------------------------------------|-------|
| 1    | C 17296   | AXLE - front                                                                | 1     |
| 2    | NSS       | SPINDLE - L.H. (before S/N 14098406 use C29728, C29730)                     | 1     |
| 3    | C 29730   | SPINDLE - L.H. (use S/N 14098406 and after) shown                           | 1     |
| 4    | C 25937   | SPINDLE - R.H.                                                              | 1     |
| 5    | NSS       | SHAFT - steering (use C26329, C26325 and 138-143)                           | 1     |
| 6    | C 30163   | ARM - upper, spindle (before S/N 14098406 use C30163, C29730)               | 1     |
| 7    | 113- 417  | ARM - upper spindle (use S/N 14098406 and after) shown                      | 1     |
| 8    | 192- 23   | BOLT - 1/2" x 1-3/4" NC hex                                                 | 1     |
| 9    | 195- 536  | LOCK WASHER - 1/2"                                                          | 1     |
| 10   | C 17684   | WASHER - 9/16"                                                              | 1     |
| 11   | C 28248   | WASHER - thrust                                                             | 4     |
| 12   | C 12888   | RING - retaining                                                            | 1     |
| 13   | C 18248   | BUSHING - spindle                                                           | 4     |
| 14   | 219- 17   | SPACER - bearing                                                            | 2     |
| 15   | C 13106   | FITTING - lubrication                                                       | 2     |
| 16   | C 25942   | COVER - lubrication fitting                                                 | 2     |
| 17   | C 29010   | TIE ROD                                                                     | 1     |
| 18   | C 25943   | KEY - 1/4" x 1/4" x 1-3/8" (use before S/N 14098406)                        | 1     |
| 19   | C 25997   | BALL JOINT                                                                  | 3     |
| 20   | 129- 127  | TUBE - steering column                                                      | 1     |
| 21   | 192- 25   | NUT - 5/8" N.F. hex                                                         | 6     |
| 22   | 126- 16   | LOCK WASHER - 5/8"                                                          | 3     |
| 23   | C 18014   | KEY - Woodruff #10                                                          | 1     |
| 24   | C 12975   | WHEEL - steering (use before S/N 14030174)                                  | 1     |
| 25   | 131- 1113 | WASHER - 5/8"                                                               | 1     |
| 26   | C 16945   | NUT - lock 5/8" NC hex                                                      | 1     |
| 27   | 138- 172  | CAP - steering wheel (use before S/N 14030174) and (S/N 14076821 and after) | 1     |
| 28   | C 26329   | PIN - roll 3/8" x 1-1/4" (use before S/N 14076821)                          | 1     |
| 29   | C 26325   | SHAFT - steering (use S/N 14030174 to 14076821)                             | 1     |
| 30   | 138- 143  | WHEEL - steering (use S/N 14030174 to 14076821)                             | 1     |
|      | C 27990   | PIN - roll 1/4" x 2-1/4" (use S/N 14030174 to 14076821)                     | 1     |
|      |           | WHEEL - steering (use S/N 14076821 and after)                               | 1     |

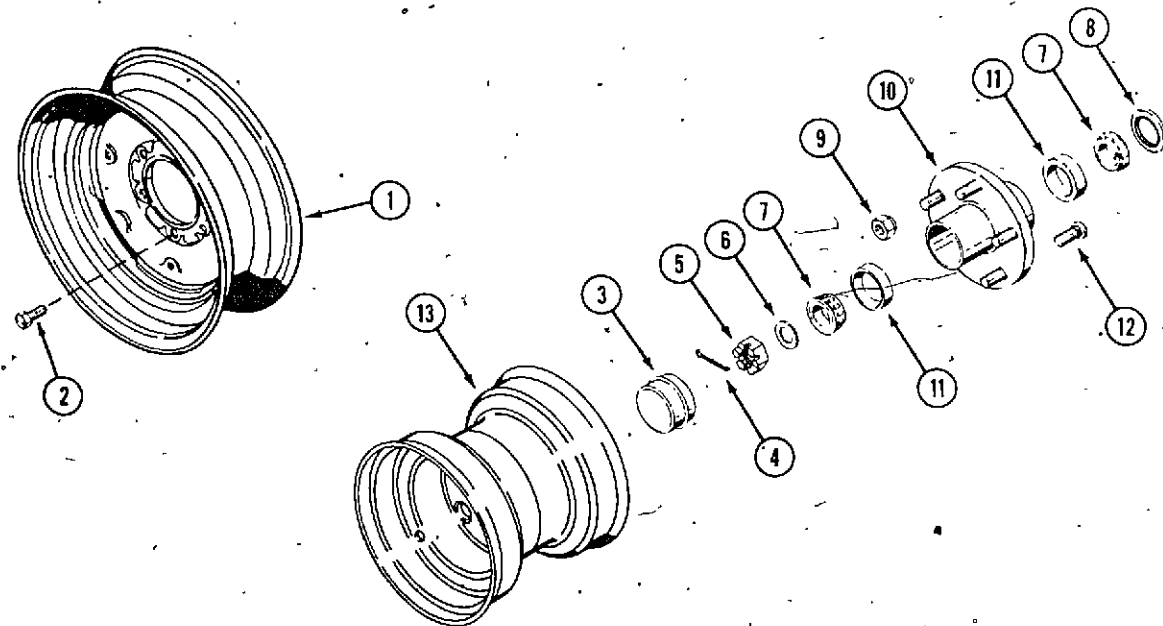
## BRAKE ASSEMBLY

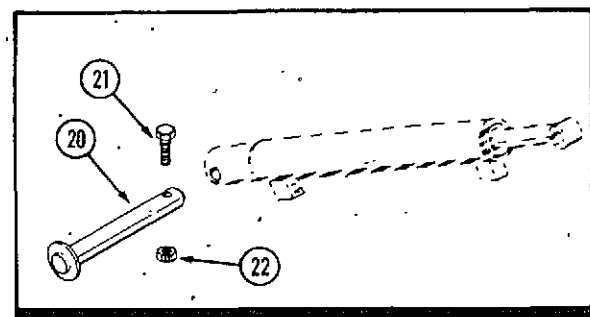
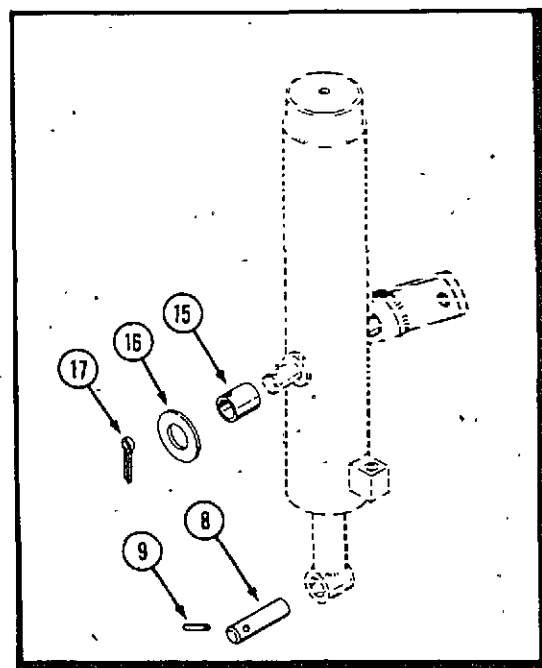
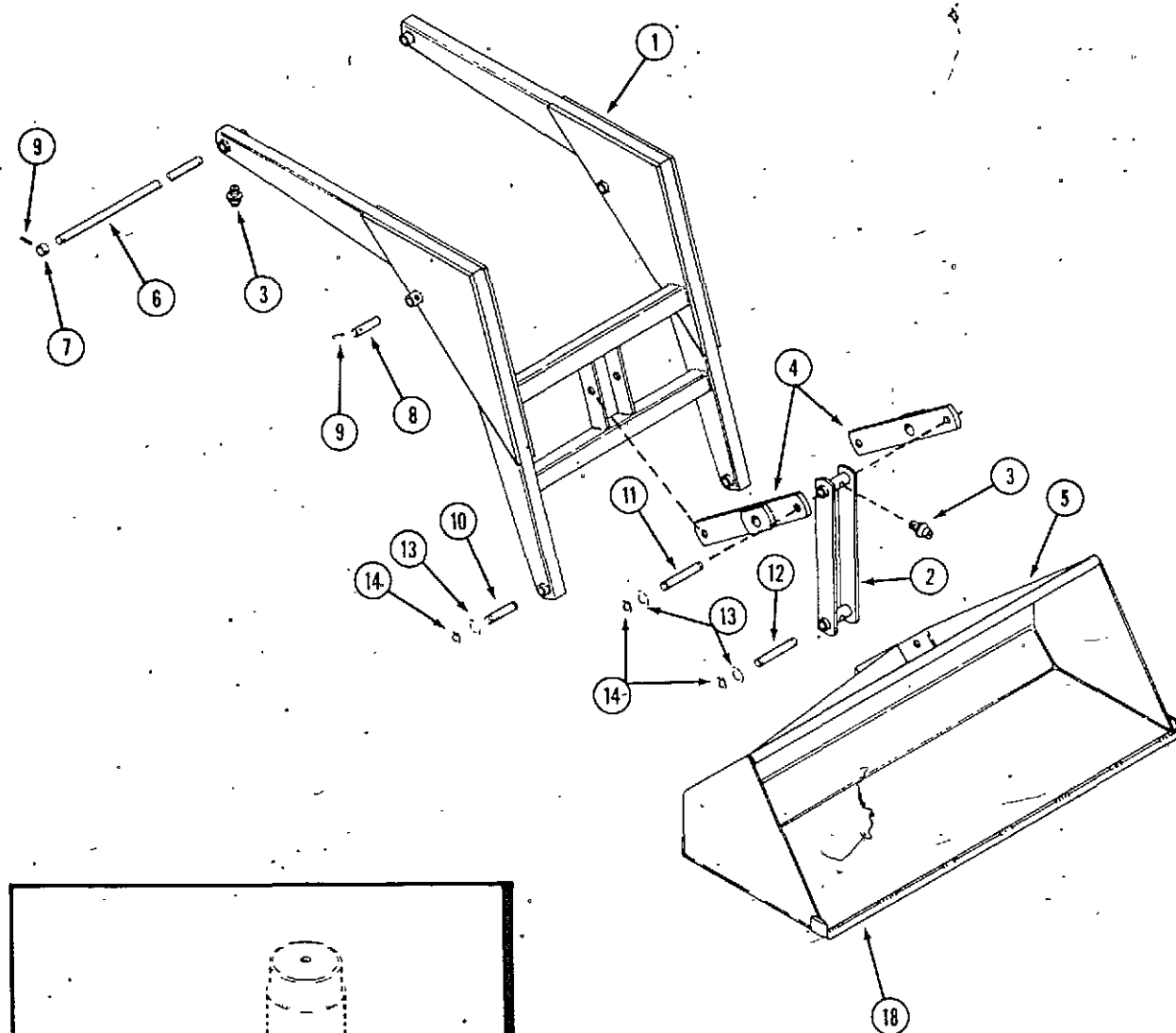


| REF. | PART NO.  | DESCRIPTION                         | REQ'D |
|------|-----------|-------------------------------------|-------|
| 1    | C 26683   | PEDAL - brake                       | 1     |
| 2    | C 18029   | BRACKET - saddle                    | 2     |
| 3    | 113- 206  | BOLT - 3/8" x 3/4" NC hex           | 4     |
| 4    | 131- 1181 | NUT - lock 3/8" NC hex              | 4     |
| 5    | 138- 92   | PIN - roll 3/16" x 3/4"             | 1     |
| 6    | C 18105   | LOCK - brake                        | 1     |
| 7    | C 17541   | SPRING - brake lock                 | 1     |
| 8    | 113- 5    | BOLT - 1/4" x 1-1/2" NC hex         | 1     |
| 9    | 131- 1102 | NUT - lock 1/4" NC hex              | 1     |
| 10   | C 18278   | SPRING - brake return               | 1     |
| 11   | C 27472   | ROD - brake                         | 1     |
| 12   | 213- 41   | CLEVIS                              | 1     |
| 13   | 141- 54   | PIN - clevis                        | 1     |
| 14   | 132- 310  | PIN - cotter 1/8" x 1"              | 4     |
| 15   | C 14187   | BAND - brake                        | 1     |
| 16   | C 13526   | PIN - clevis                        | 2     |
| 17   | C 18305   | ARM - actuator                      | 1     |
| 18   | 132- 333  | PIN - cotter 1/8" x 5/8"            | 1     |
| 19   | C 18306   | BRACKET - pivot                     | 1     |
| 20   | 113- 412  | BOLT - 1/2" x 1-3/4" NC hex (648)   | 2     |
| 20   | 113- 426  | BOLT - 1/2" x 2-3/4" NC hex (648BH) | 2     |
| 21   | 192- 23   | LOCK WASHER - 1/2"                  | 2     |
| 22   | 129- 105  | NUT - 1/2" NC hex                   | 2     |

## FRONT AND REAR WHEELS

|    |          |                                                                    |    |
|----|----------|--------------------------------------------------------------------|----|
| 1  | C 26907  | WHEEL - rim, rear (648BH) (used in LL-120 Hi-Flotation kit)(brown) | 2  |
| 1  | C 10316  | WHEEL - rim, rear (648)                                            | 2  |
| 2  | C 27763  | BOLT - rear wheel lug                                              | 12 |
| 3  | C 28317  | CAP - dust                                                         | 2  |
| 4  | 132- 335 | PIN - cotter 1/8" x 1-1/4"                                         | 2  |
| 5  | 129- 290 | NUT - castle 3/4" NC hex                                           | 2  |
| 6  | C 28972  | WASHER - retaining                                                 | 2  |
| 7  | C 28262  | BEARING - cone                                                     | 4  |
| 8  | C 28316  | SEAL - bearing                                                     | 2  |
| 9  | C 28305  | NUT - wheel                                                        | 10 |
| 10 | C 27435  | HUB ASSEMBLY - front wheel                                         | 2  |
| 11 | C 28988  | RACE - bearing                                                     | 4  |
| 12 | C 18300  | STUD - wheel                                                       | 10 |
| 13 | NSS      | HUB - wheel                                                        | 2  |
| 13 | C 26902  | WHEEL - rim, front(brown)                                          | 2  |

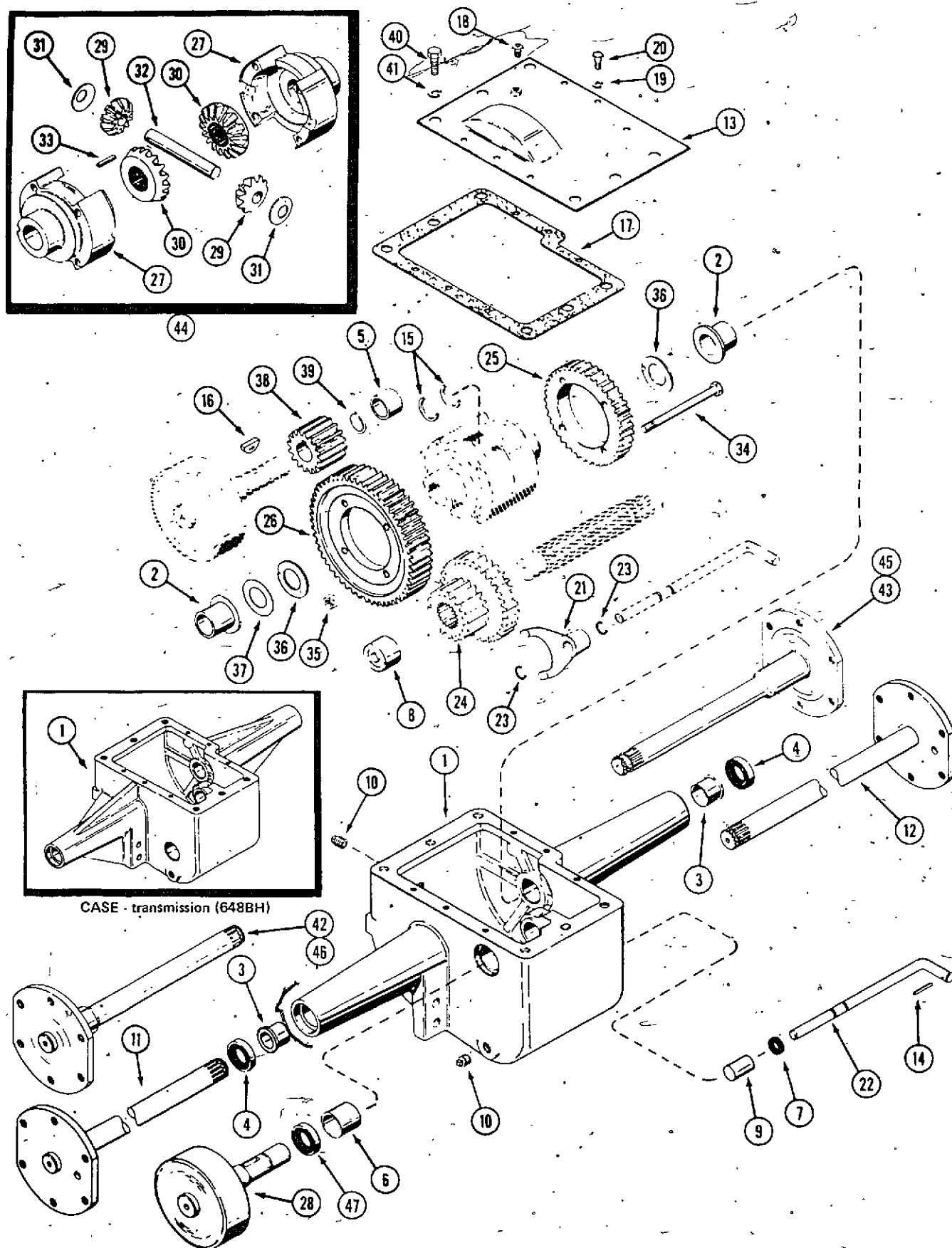




## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## BUCKET AND ARM ASSEMBLY

| REF. | PART NO.  | DESCRIPTION                    | REQ'D |
|------|-----------|--------------------------------|-------|
| 1    | C 17311   | ARM ASSEMBLY - bucket lift     | 1     |
| 2    | C 17322   | ARM - bucket                   | 1     |
| 3    | 219- 20   | FITTING - lube                 | 4     |
| 4    | C 18249   | LINK - bucket cylinder         | 2     |
| 5    | C 17328   | BUCKET ASSEMBLY - loader       | 1     |
| 6    | C 17337   | ROD - arm assembly mounting    | 1     |
| 7    | C 17987   | COLLAR                         | 2     |
| 8    | C 21963   | PIN - cylinder mounting        | 3     |
| 9    | 138- 2005 | PIN - spiral 1/4" x 1"         | 5     |
| 10   | C 17334   | PIN - bucket mounting, 3-5/16" | 2     |
| 11   | C 17335   | PIN - 4-15/16"                 | 2     |
| 12   | C 17336   | PIN - 4-3/4"                   | 1     |
| 13   | 195- 545  | WASHER - 13/32"                | 10    |
| 14   | C 28232   | RING - retaining               | 10    |
| 15   | C 18145   | BUSHING - oilite               | 2     |
| 16   | 195- 533  | WASHER - 1-1/16"               | 2     |
| 17   | 132- 311  | PIN - cotter 5/32" x 1-1/4"    | 2     |
| 18   | C 12824   | EDGE - cutting                 | 1     |
| 19   | C 13106   | COVER - lube fitting           | 4     |
| 20   | C 17714   | PIN - cylinder mounting        | 2     |
| 21   | 113- 122  | BOLT - 5/16" - 18 x 1-1/2"     | 2     |
| 22   | 131- 176  | NUT - lock 5/16" hex           | 2     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## TRANSMISSION AND FINAL DRIVE

| REF. | PART NO.  | DESCRIPTION                                                             | REQ'D |
|------|-----------|-------------------------------------------------------------------------|-------|
|      | C 26322   | CASE ASSEMBLY - 648BH (use S/N 14014289 and after)                      | 1     |
|      | C 24843   | CASE ASSEMBLY - 648                                                     | 1     |
|      | NSS       | CASE ASSEMBLY - 648BH (use C26356 kit before S/N 14014289)              | 1     |
| 1    | NSS       | CASE - transmission (order assembly above)                              | 1     |
| 2    | C 12713   | BEARING - flanged                                                       | 2     |
| 3    | C 24804   | BEARING - flanged (648)                                                 | 2     |
| 3    | C 26245   | BEARING - flanged (648BH)(use S/N 14014289 and after)                   | 2     |
| 4    | C 18097   | SEAL - axle (648BH)(use S/N 14014289 and after)                         | 2     |
| 4    | C 24803   | SEAL - axle (648)                                                       | 2     |
| 5    | C 13241   | BEARING - sleeve                                                        | 1     |
| 6    | C 13385   | BEARING - sleeve                                                        | 1     |
| 7    | C 13266   | SEAL - shift rod                                                        | 1     |
| 8    | C 28281   | BEARING - roller                                                        | 1     |
| 10   | 221- 843  | PLUG - filler and drain 3/8"                                            | 2     |
| 10   | 221- 844  | PLUG - filler and drain 1/2"                                            | 2     |
| 11   | C 22638   | SHAFT - axle, short R.H. (648)                                          | 1     |
| 12   | C 22637   | SHAFT - axle, long L.H. (648)                                           | 1     |
| 13   | C 13197   | COVER - transmission                                                    | 1     |
| 14   | 138- 2073 | PIN - roll 3/16" x 1-1/4"                                               | 1     |
| 15   | C 26342   | RING - retainer, axle                                                   | 2     |
| 16   | 126- 128  | KEY - woodruff, brake idler                                             | 1     |
| 17   | C 13196   | GASKET - transmission cover                                             | 1     |
| 18   | C 28241   | BREATHER - transmission                                                 | 1     |
| 19   | 192- 19   | LOCK WASHER - 1/4"                                                      | 6     |
| 20   | 113- 3    | BOLT - 1/4" x 3/4" NC hex                                               | 6     |
| 21   | C 12725   | FORK - shift                                                            | 1     |
| 22   | C 24802   | ROD - gear shift                                                        | 1     |
| 23   | C 14168   | RING - retaining                                                        | 2     |
| 24   | C 14644   | GEAR - cluster input                                                    | 1     |
| 25   | C 30030   | GEAR - high 41 tooth (also use C30031 before S/N 14098394)              | 1     |
| 26   | C 12552   | GEAR - low 55 tooth                                                     | 1     |
| 27   | NSS       | KIT - diff. case                                                        | 1     |
| 28   | C 25258   | BRAKE DRUM                                                              | 1     |
| 29   | NSS       | GEAR - differential pinion                                              | 2     |
| 30   | NSS       | GEAR - differential                                                     | 2     |
| 31   | NSS       | WASHER - pinion thrust                                                  | 2     |
| 32   | NSS       | PIN - differential cross                                                | 1     |
| 33   | NSS       | PIN - differential cross lock                                           | 1     |
| 34   | 28- 680   | BOLT - 3/8" x 5" NF hex shown (use before S/N 14098394)                 | 4     |
| 34   | C 30031   | KIT - screw (is a quantity of 4)(use S/N 14098394 and after)            | 1     |
| 35   | 131- 1133 | NUT - lock 3/8" NC hex (use before S/N 14098394)                        | 4     |
| 36   | C 12718   | WASHER - differential                                                   | 2     |
| 37   | C 14223   | WASHER - spacer                                                         | 2     |
| 38   | C 25254   | GEAR - brake idler                                                      | 1     |
| 39   | C 14222   | RING - retainer, brake idler                                            | 1     |
| 40   | 113- 417  | BOLT - 1/2" x 1-1/4" NC (transaxle mounting)                            | 6     |
| 40   | 166- 86   | BOLT - 1/2" - 13 x 1-1/4" 12 pt. flange                                 | 1     |
| 41   | 192- 23   | LOCK WASHER - 1/2"                                                      | 6     |
| 42   | NSS*      | SHAFT - axle, short R.H. (648BH)(used in LL-120 Hi-Flotation kit) shown | 1     |
| 43   | NSS**     | SHAFT - axle, long L.H. (648BH)(used in LL-120 Hi-Flotation kit) shown  | 1     |
| 44   | C 30029   | DIFFERENTIAL - (includes C30030, C30031 and C12552)                     | 1     |
| 45   | C 26250   | SHAFT - axle, long L.H. (648BH)(use S/N 14014289 and after)             | 1     |
| 46   | C 26249   | SHAFT - axle, short R.H. (648BH)(use S/N 14014289 and after)            | 1     |
| 47   | C 24803   | SEAL - shaft                                                            | 1     |

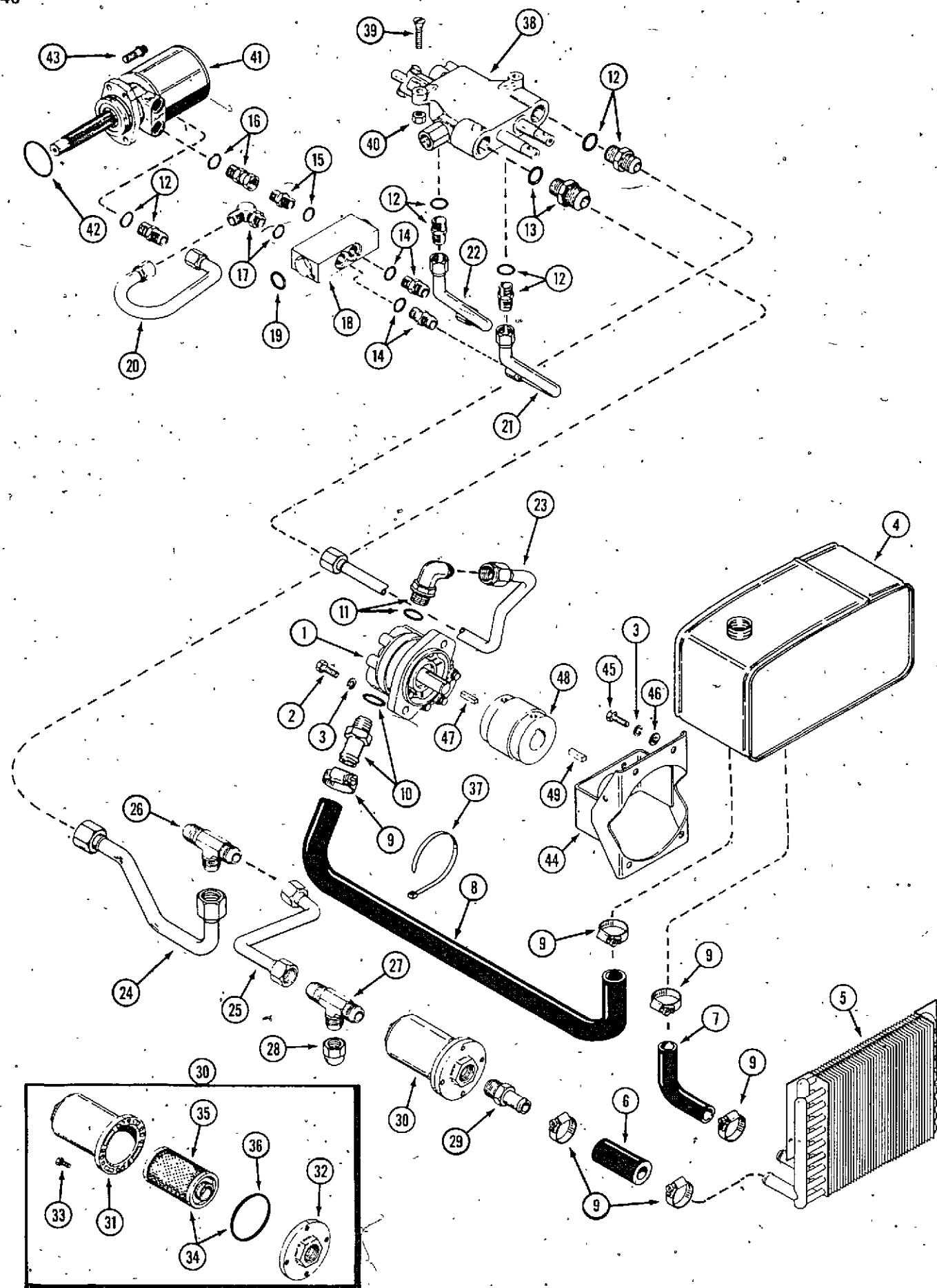
\*Before S/N 14014289 use C26249, C26245 and C18097

\*\*Before S/N 14014289 use C26250, C26245 and C18097

NOTE: Both axles should be changed at the same time.

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## HYDRAULIC SYSTEM (TRAVEL CONTROL)

| REF. | PART NO.  | DESCRIPTION                                                                  | REQ'D |
|------|-----------|------------------------------------------------------------------------------|-------|
| 1    | NSS*      | PUMP - hydraulic (repairs page 53) (use C28370, C28371, 217-179)             | 1     |
| 1    | C 28370** | PUMP - hydraulic (repairs page 53)                                           | 1     |
| 2    | 61-       | SCREW - 3/8" - 16 - 1" hex socket head N.C. (use before S/N 14030241)        | 1     |
| 2    | 62-       | SCREW - 3/8" - 24 x 1" N.F. (use S/N 14030241 and after)                     | 2     |
| 3    | 192-      | LOCK WASHER - 3/8"                                                           | 2     |
| 4    | C 25952   | RESERVOIR - oil                                                              | 6     |
| 5    | C 25376   | EXCHANGER - heat (use before S/N 14030233)                                   | 1     |
| 5    | C 26456   | EXCHANGER - heat (use S/N 14030233 and after) shown                          | 1     |
| 6    | NSS       | HOSE - rubber 3/4" I.D. (use C22902)                                         | 2     |
| 7    | C 25955   | HOSE - rubber 90° 3/4" I.D. (use before S/N 14030233)                        | 1     |
| 7    | C 25955   | HOSE - rubber 90° 3/4" I.D. (use S/N 14030233)                               | 1     |
| 8    | C 28293   | HOSE - rubber 90° 3/4" I.D. (use S/N 14030233 and after) (cut to size)       | 1     |
| 9    | 214-      | HOSE - rubber 1" I.D.                                                        | 1     |
| 9    | 217-      | CLAMP - hose                                                                 | 6     |
| 10   | 217-      | FITTING - pump inlet (includes 218-5008 "O" ring)                            | 1     |
| 10   | 217-      | FITTING - pump inlet (includes 218-5008 "O" ring)                            | 1     |
| 11   | 218-      | FITTING - pump outlet 90° (includes 218-5007 "O" ring)                       | 1     |
| 12   | 218-      | FITTING - hydraulic (includes 218-5007 "O" ring)                             | 1     |
| 13   | 218-      | FITTING - travel valve outlet (includes 218-5007 "O" ring)                   | 4     |
| 14   | 218-      | FITTING - hydraulic (includes 218-5006 "O" ring)                             | 1     |
| 15   | NSS       | FITTING - hydraulic (includes 218-5006 "O" ring) (use 218-5406 and 218-5254) | 2     |
| 16   | 218-      | FITTING - swivel (includes 218-5007 "O" ring)                                | 1     |
| 17   | 218-      | FITTING - hydraulic 90° (includes 218-5006 "O" ring)                         | 1     |
| 18   | C 24995   | VALVE - holding                                                              | 1     |
| 19   | C 28487   | "O" RING - end caps                                                          | 1     |
| 20   | C 24994   | TUBE - holding valve to hydraulic motor                                      | 2     |
| 21   | C 25007   | TUBE - holding valve to travel valve                                         | 1     |
| 22   | C 25008   | TUBE - holding valve to travel valve                                         | 1     |
| 23   | C 18284   | TUBE - pump to travel valve                                                  | 1     |
| 24   | C 21611   | TUBE - travel valve to tee                                                   | 1     |
| 25   | C 25956   | TUBE - tee to filter                                                         | 1     |
| 26   | 218-      | FITTING - tee                                                                | 1     |
| 27   | 218-      | FITTING - tee                                                                | 1     |
| 28   | 218-      | CAP - tee                                                                    | 1     |
| 29   | 217-      | FITTING - hydraulic                                                          | 1     |
| 30   | C 30152   | FILTER - hydraulic oil                                                       | 1     |
| 31   | C 28753   | HOUSING - filter                                                             | 1     |
| 32   | C 28754   | COVER - filter                                                               | 1     |
| 33   | 113-      | BOLT - cover                                                                 | 1     |
| 34   | C 28783   | KIT - filter service                                                         | 1     |
| 35   | NSS       | CARTRIDGE - filter                                                           | 1     |
| 36   | C 28755   | "O" RING                                                                     | 1     |
| 37   | C 22947   | TIE - hose                                                                   | 1     |
| 38   | C 25968   | VALVE - hydraulic, travel control (repairs page 49)                          | 9     |
| 39   | 171-      | SCREW - 5/16" - 18 x 1-1/4" flat head                                        | 1     |
| 40   | 131-      | NUT - lock, 5/16" - 18 hex                                                   | 2     |
| 41   | NSS       | MOTOR - hydraulic drive (repairs page 55)                                    | 2     |
| 42   | C 28949   | SEAL - hydraulic motor to case                                               | 1     |
| 43   | 166-      | BOLT - 1/2" - 13 x 1-1/4" 12 point flanged                                   | 1     |
| 44   | C 25948   | SUPPORT - pump                                                               | 4     |
| 45   | 113-      | BOLT - 3/8" x 3/4"                                                           | 1     |
| 46   | 195-      | WASHER - 7/16" x 1"                                                          | 4     |
| 47   | C 28289   | KEY - 3/16" x .97" (pump shaft)                                              | 4     |
| 48   | C 25950*  | COUPLING - pump (repairs page 53)                                            | 1     |
| 48   | C 28371** | COUPLING - pump (repairs page 53)                                            | 1     |
| 49   | C 28321   | KEY - square 1/4" x 3/4" (engine shaft)                                      | 1     |

\*Use before S/N:

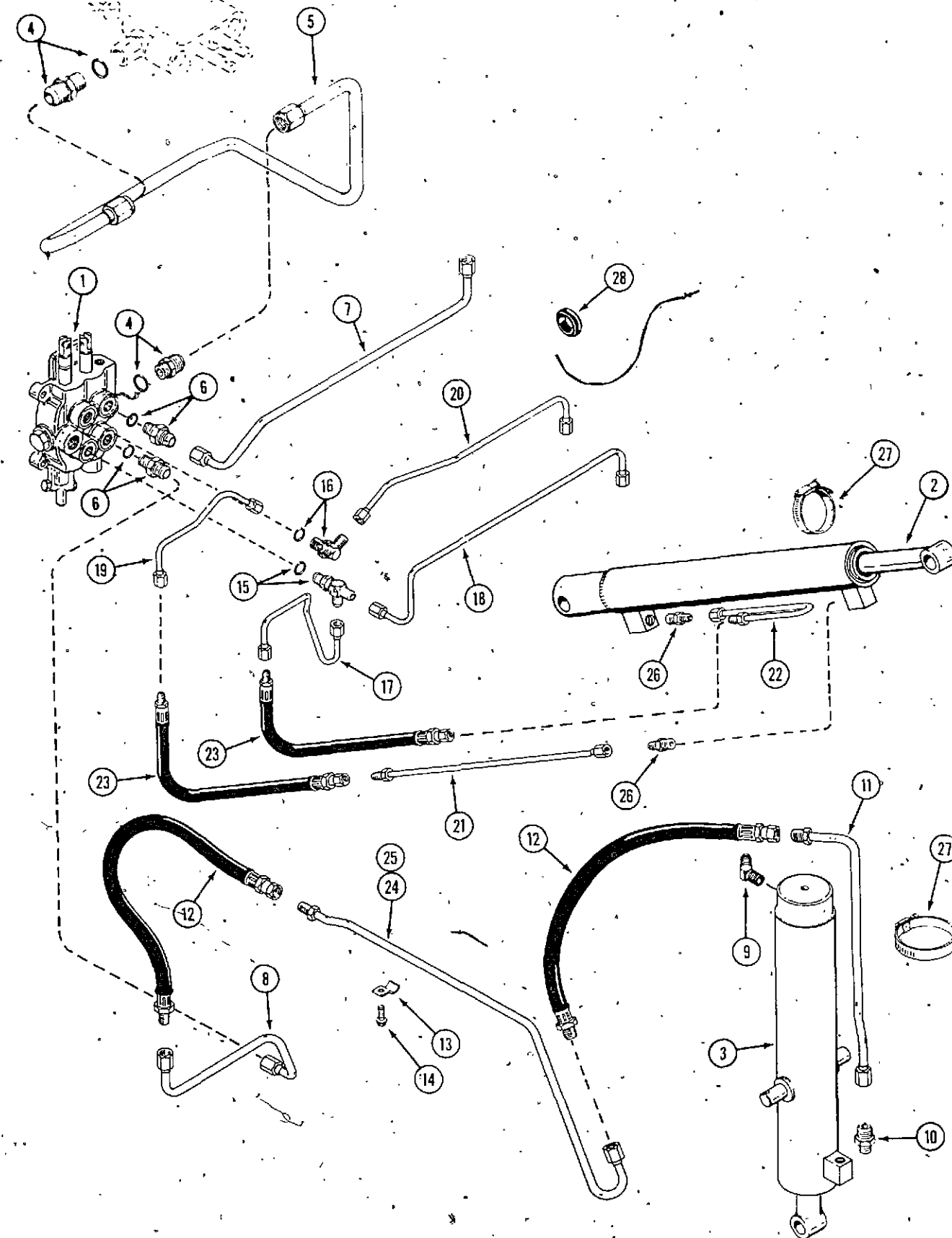
\*\*Use S/N and after:

648-14076874

648BH-14076822

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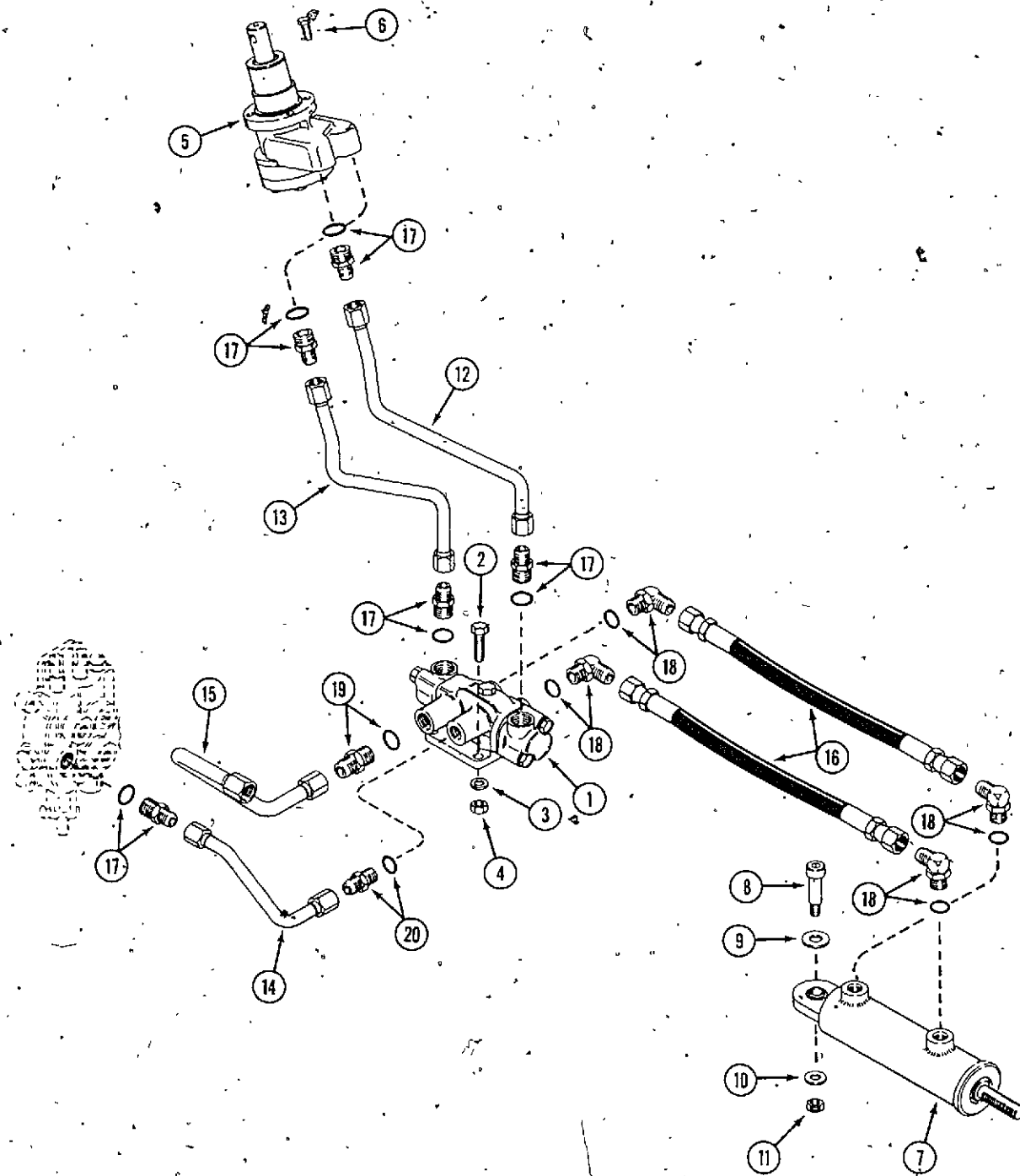
July 1988



## HYDRAULIC SYSTEM (BUCKET CONTROL)

| REF. | PART NO.  | DESCRIPTION                                                   | REQ'D |
|------|-----------|---------------------------------------------------------------|-------|
| 1    | C 18179   | VALVE - bucket control (repairs page 51)                      | 1     |
| 2    | NSS       | CYLINDER - lift arm (repairs page 63 or 65)                   | 2     |
| 3    | NSS       | CYLINDER - bucket (repairs page 63 or 65)                     | 1     |
| 4    | 218- 5066 | FITTING - hydraulic (use before S/N 14076821)                 | 2     |
|      | 218- 5006 | "O" RING                                                      | 1     |
| 4    | 218- 5058 | FITTING - hydraulic (use S/N 14076821 and after)              | 2     |
|      | 218- 5006 | "O" RING                                                      | 1     |
| 5    | C 18175*  | TUBE - travel valve to bucket valve (use before S/N 14076821) | 1     |
| 6    | 218- 5057 | FITTING - hydraulic (includes 218-5005 "O" ring)              | 2     |
| 7    | C 25162   | TUBE - bucket valve to L.H. tower                             | 1     |
| 8    | C 25161   | TUBE - bucket valve to R.H. tower                             | 1     |
| 9    | 218- 533  | FITTING - 45°                                                 | 1     |
| 10   | 218- 443  | FITTING - hydraulic                                           | 1     |
| 11   | C 26439   | TUBE - bucket cylinder                                        | 1     |
| 12   | 720- 303  | HOSE - bucket cylinder                                        | 4     |
| 13   | C 25164   | CLIP - tube mounting                                          | 4     |
| 14   | 187- 1036 | SCREW - 1/4" - 20 x 1/2" tapping                              | 4     |
| 15   | C 25166   | FITTING - "tee" (includes 218-5005 "O" ring)                  | 1     |
| 16   | C 25167   | FITTING - special 90° (includes 218-5005 "O" ring)            | 1     |
| 17   | C 26032   | TUBE - bucket valve to R.H. tower                             | 1     |
| 18   | C 25157   | TUBE - bucket valve to L.H. tower                             | 1     |
| 19   | C 25160   | TUBE - bucket valve to R.H. tower                             | 1     |
| 20   | C 25158   | TUBE - bucket valve to L.H. tower                             | 1     |
| 21   | C 25153   | TUBE - lift cylinder, rod end                                 | 1     |
| 22   | C 25154   | TUBE - lift cylinder, piston end (use before S/N 14063829)    | 2     |
| 22   | C 26435   | TUBE - lift cylinder, piston end (use S/N 14063829 and after) | 2     |
| 23   | 720- 301  | HOSE - lift cylinder                                          | 4     |
| 24   | C 25155   | TUBE - bucket cylinder R.H.                                   | 1     |
| 25   | C 25156   | TUBE - bucket cylinder L.H.                                   | 1     |
| 26   | 218- 1022 | FITTING - hydraulic                                           | 4     |
| 27   | 214- 262  | CLAMP - 2-5/16" to 3-1/4"                                     | 3     |
| 28   | C 25165   | GROMET - tower                                                | 2     |

\*see page 45B for use  
S/N 14076821 and after

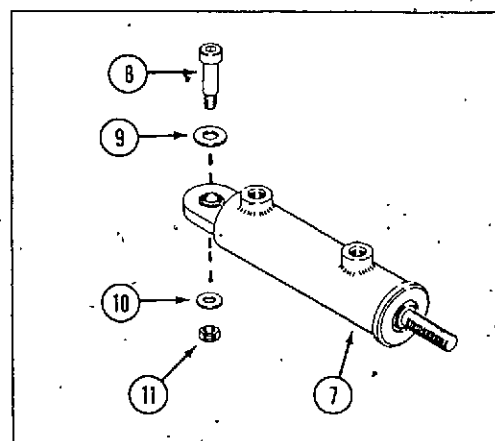
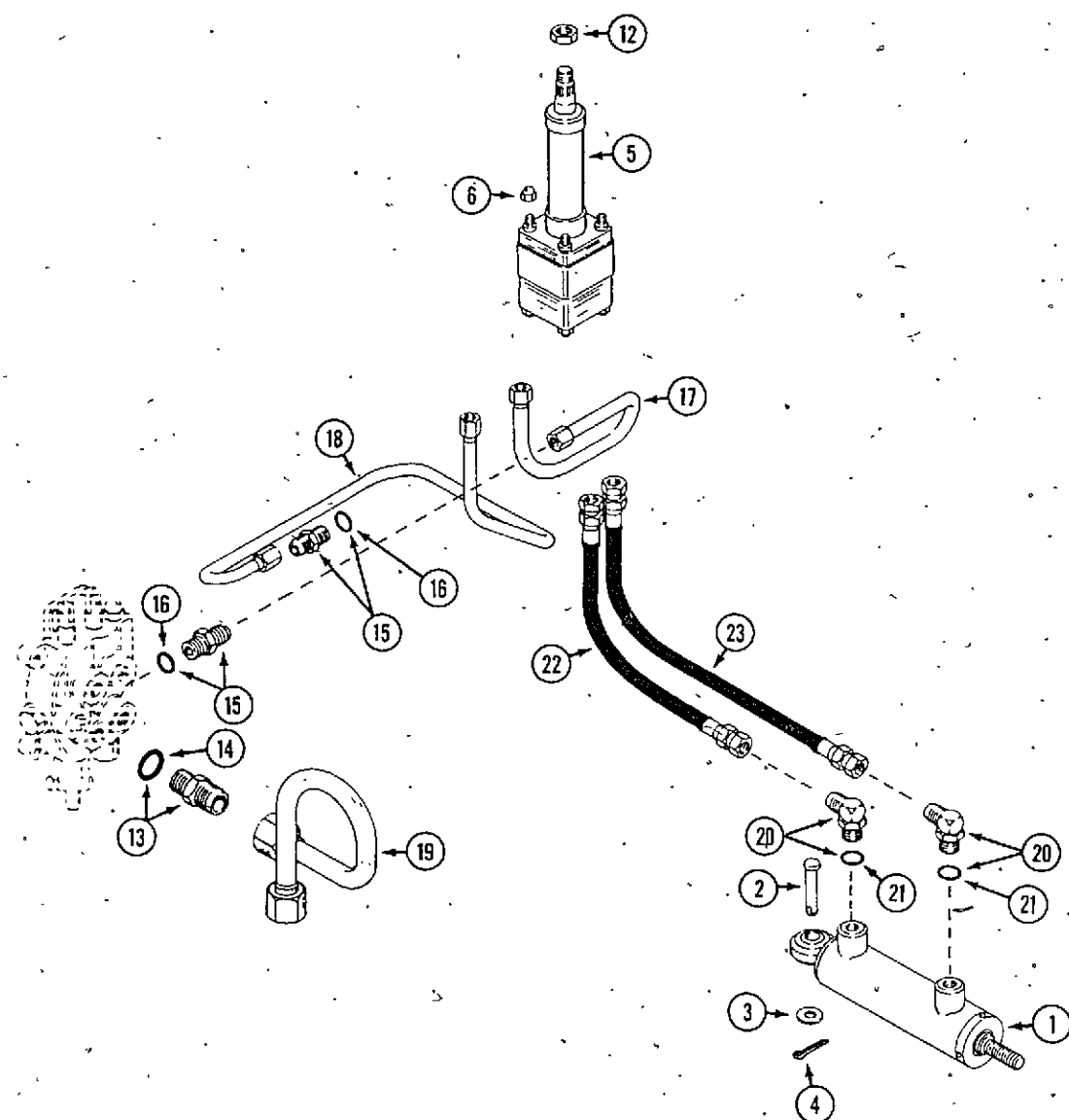


## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## HYDRAULIC SYSTEM (POWER STEERING)

(Use before S/N 14076821)

| REF. | PART NO.  | DESCRIPTION                                                  | REQ'D |
|------|-----------|--------------------------------------------------------------|-------|
| 1    | C 28238   | VALVE - power steering (repairs page 57)                     | 1     |
| 2    | 113- 208  | BOLT - 3/8" - 16 x 1-1/4" hex                                | 3     |
| 3    | 192- 21   | LOCK WASHER - 3/8"                                           | 3     |
| 4    | 129- 103  | NUT - 3/8" - 16 hex                                          | 3     |
| 5    | C 26002   | PUMP - steering, manual (repairs page 59)                    | 1     |
| 6    | 113- 190  | BOLT - 5/16" - 18 x 5/8" hex                                 | 4     |
| 7    | C 26003   | CYLINDER - steering (repairs page 57)                        | 1     |
| 8    | C 26018   | BOLT - shoulder                                              | 1     |
| 9    | 195- 533  | WASHER - 1/2"                                                | 1     |
| 10   | 196- 1    | WASHER - special 3/8"                                        | 1     |
| 11   | 131- 1181 | NUT - lock 3/8" - 16 hex                                     | 1     |
| 12   | C 25998   | TUBE - pump R.H.                                             | 1     |
| 13   | C 25999   | TUBE - pump L.H.                                             | 1     |
| 14   | C 26000   | TUBE - supply                                                | 1     |
| 15   | C 26001   | TUBE - return                                                | 1     |
| 16   | C 28275   | HOSE - valve to cylinder                                     | 2     |
| 17   | 218- 5066 | FITTING - hydraulic (includes 218-5006 "O" ring)             | 5     |
| 18   | 218- 5105 | FITTING - 90° elbow, adjustable (includes 218-5005 "O" ring) | 4     |
| 19   | 218- 5353 | FITTING - hydraulic (includes 218-5006 "O" ring)             | 1     |
| 20   | 218- 5360 | FITTING - hydraulic (includes 218-5005 "O" ring)             | 1     |



USE BEFORE S/N 14076828

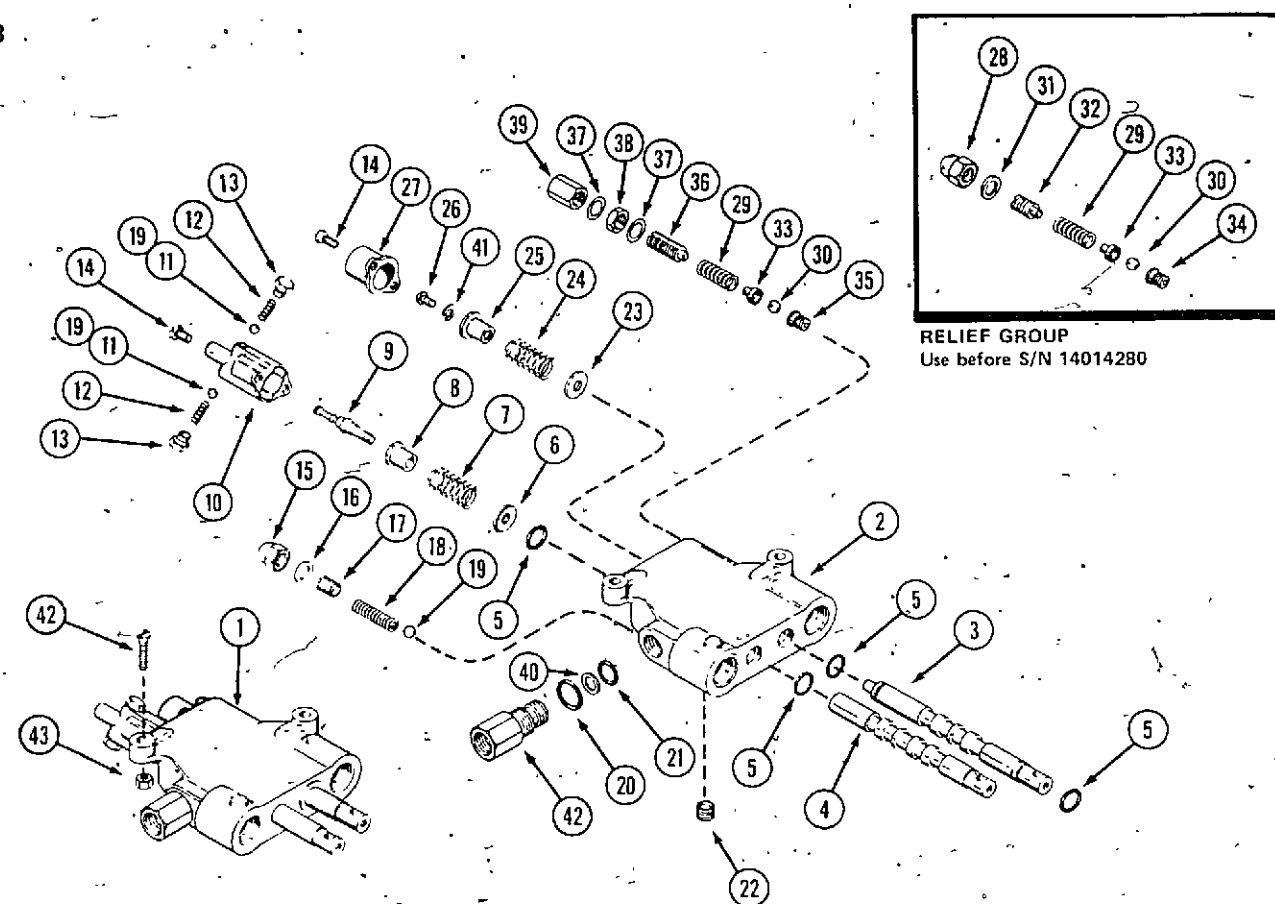
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## HYDRAULIC SYSTEM (POWER STEERING)

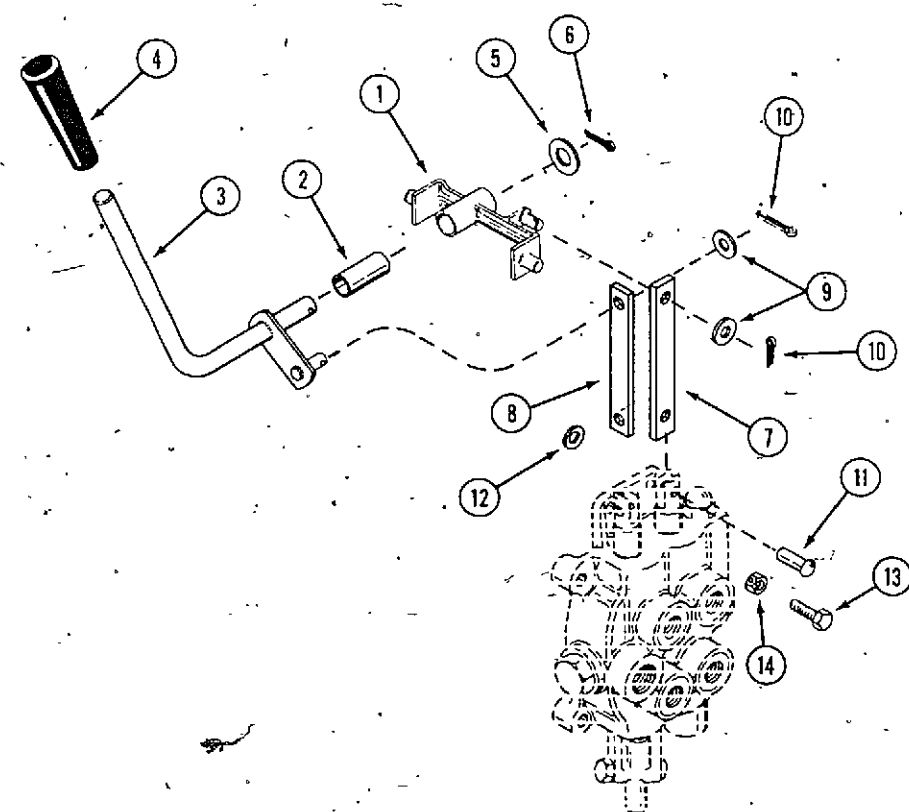
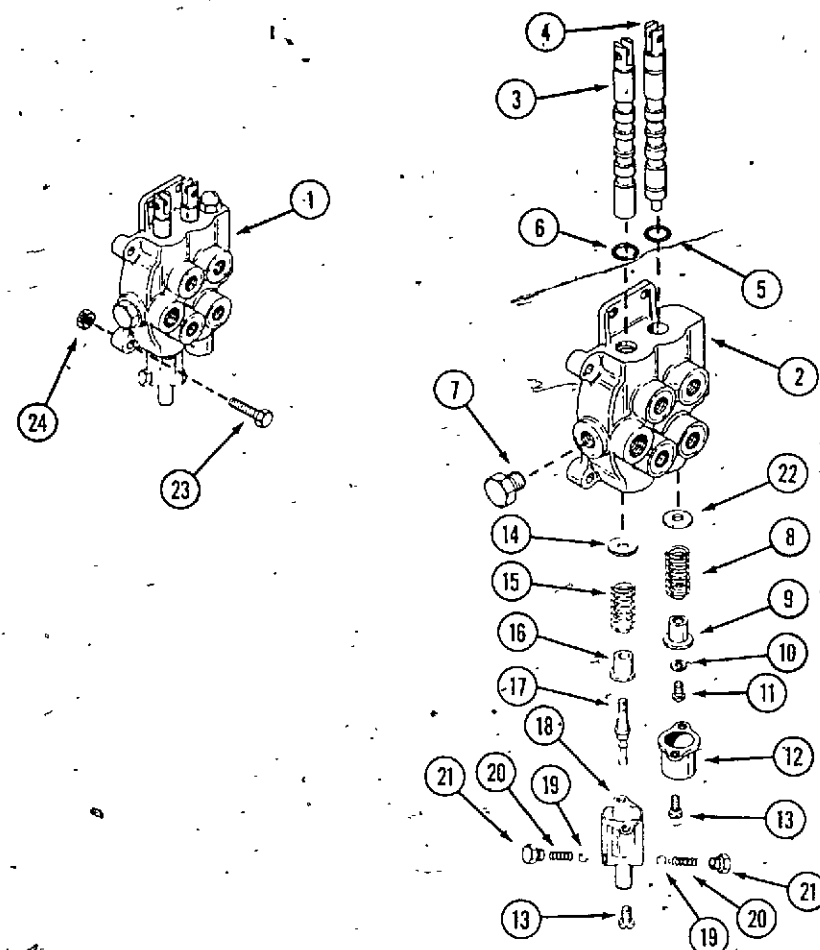
(Use S/N 14076821 and after)

| REF. | PART NO.  | DESCRIPTION                                          | REQ'D |
|------|-----------|------------------------------------------------------|-------|
| 1    | C 26434   | CYLINDER - steering                                  | 1     |
|      | C 26443   | KIT - gasket                                         | 1     |
| 2    | C 16128   | PIN - clevis 1/2"                                    | 1     |
| 3    | 195- 541  | WASHER                                               | 1     |
| 4    | 132- 91   | PIN - cotter 3/16" x 1"                              | 1     |
| 5    | C 27992   | PUMP - steering, manual (repairs page 61)            | 1     |
| 6    | C 27991   | NUT - 5/16" - 24 black                               | 4     |
| 7    | C 26003   | CYLINDER - steering (repairs page 57)                | 1     |
| 8    | C 26018   | BOLT - shoulder                                      | 1     |
| 9    | 195- 533  | WASHER - 1/2"                                        | 1     |
| 10   | 196- 1    | WASHER - special 3/8"                                | 1     |
| 11   | 131- 1181 | NUT - lock 3/8" - 16 hex                             | 1     |
| 12   | 129- 127  | NUT - 5/8" - 18                                      | 1     |
| 13   | 218- 5353 | FITTING - hydraulic                                  | 1     |
| 14   | 218- 5006 | "O" RING                                             | 1     |
| 15   | 218- 5058 | FITTING - hydraulic                                  | 2     |
| 16   | 218- 5006 | "O" RING                                             | 1     |
| 17   | C 27993   | TUBE - steering pump (out) to bucket valve           | 1     |
| 18   | C 27994   | TUBE - steering pump (in) to travel valve            | 1     |
| 19   | C 21616   | TUBE - bucket valve to return                        | 1     |
| 20   | 218- 5105 | FITTING - 90° elbow, adjustable                      | 2     |
| 21   | 218- 5005 | "O" RING                                             | 1     |
| 22   | C 27995   | HOSE - steering pump (L.T.) to cylinder 23" (585 mm) | 1     |
| 23   | C 27996   | HOSE - steering pump (R.T.) to cylinder 27" (685 mm) | 1     |

## HYDRAULIC CONTROL VALVE - TRACTOR



| REF. | PART NO.  | DESCRIPTION                                 | REQ'D |
|------|-----------|---------------------------------------------|-------|
| 1    | C 25968   | VALVE - tractor control                     | 1     |
| 2    | NSS       | BODY - valve (order C25968 valve)           | 1     |
| 3    | NSS       | SPOOL - valve (order C25968 valve)          | 1     |
| 4    | NSS       | SPOOL - valve (order C25968 valve)          | 1     |
| 5    | C 28856   | SEAL - "O" ring, spool                      | 4     |
| 6    | C 28705   | WASHER                                      | 1     |
| 7    | C 28706   | SPRING - detent                             | 1     |
| 8    | C 28707   | SPACER                                      | 1     |
| 9    | C 17439   | DETENT - spool (use with 1/4" detent ball)  | 1     |
| 9    | C 26668   | DETENT - spool (use with 3/16" detent ball) | 1     |
| 10   | C 17438   | COVER - detent                              | 1     |
| 11   | 211- 5    | BALL - steel 3/16"                          | 2     |
| 12   | C 17444   | SPRING - detent                             | 2     |
| 13   | C 28708   | SCREW - detent, cap                         | 2     |
| 14   | 169- 114  | SCREW - cover                               | 4     |
|      | C 21511   | KIT - relief                                | 1     |
| 15   | 129- 531  | CAP - relief adjust                         | 1     |
| 16   | C 17435   | GASKET - relief adjust cap                  | 1     |
| 17   | C 17433   | SCREW - relief adjust                       | 1     |
| 18   | NSS       | SPRING - relief                             | 1     |
| 19   | 211- 7    | BALL - steel 1/4"                           | 1     |
| 20   | 218- 5007 | SEAL - "O" ring, bushing                    | 1     |
| 21   | C 28752   | SEAL - "O" ring                             | 1     |
| 22   | 221- 841  | PLUG - pipe 1/4"                            | 1     |
| 23   | 195- 521  | WASHER - return                             | 1     |
| 24   | C 26431   | SPRING - return                             | 1     |
| 25   | C 18853   | SPACER - (use before S/N 14014280)          | 1     |
| 25   | C 26667   | SPACER - (use S/N 14014280 and after)       | 1     |
| 26   | 164- 602  | SCREW - No. 10 - 32 x 1/2" socket           | 1     |
| 27   | C 18847   | COVER - return                              | 1     |
| 28   | C 21510   | CAP - relief adjust                         | 1     |
| 29   | C 21507   | SPRING - relief                             | 1     |
| 30   | 211- 208  | BALL - steel 5/16"                          | 1     |
| 31   | C 21508   | GASKET - relief adjust cap                  | 1     |
| 32   | C 21509   | SCREW - relief adjust                       | 1     |
| 33   | C 21506   | RETAINER - ball, relief                     | 1     |
| 34   | C 21522   | SEAT - ball, relief                         | 1     |
| 35   | C 26663   | SEAT - ball, relief                         | 1     |
| 36   | C 26665   | SCREW - relief adjust                       | 1     |
| 37   | C 26664   | GASKET - relief adjust, cap and nut         | 1     |
| 38   | 129- 166  | NUT - relief adjust                         | 1     |
| 39   | C 26666   | CAP - relief                                | 1     |
| 40   | C 26669   | RING - backup                               | 1     |
| 41   | 192- 18   | LOCK WASHER                                 | 1     |
| 42   | C 18852   | BUSHING - power beyond                      | 1     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## HYDRAULIC CONTROL VALVE (BUCKET)

| REF. | PART NO.  | DESCRIPTION                                                     | REQ'D |
|------|-----------|-----------------------------------------------------------------|-------|
| 1    | C 18179   | VALVE - bucket control                                          | 1     |
| 2    | NSS       | BODY - valve (order C 18179 valve)                              | 1     |
| 3    | NSS       | SPOOL - valve (order C 18179 valve)                             | 1     |
| 4    | NSS       | SPOOL - valve (order C 18179 valve)                             | 1     |
| 5    | C 28989   | SEAL - "O" ring, spool                                          | 2     |
| 6    | C 28856   | SEAL - "O" ring, spool                                          | 2     |
| 7    | 221- 843  | PLUG - 3/8"                                                     | 1     |
| 8    | C 26431   | SPRING - return                                                 | 1     |
| 9    | C 13200   | SPACER                                                          | 1     |
| 10   | 195- 510  | WASHER                                                          | 1     |
| 11   | 193- 524  | SCREW                                                           | 1     |
| 12   | C 18847   | COVER - centering                                               | 1     |
| 13   | 169- 114  | SCREW - cover                                                   | 4     |
| 14   | C 17440   | WASHER                                                          | 1     |
| 15   | C 17441   | SPRING - return                                                 | 1     |
| 16   | C 13200   | SPACER - detent                                                 | 1     |
| 17   | C 17439   | DETENT - spool                                                  | 1     |
| 18   | C 17438   | COVER - detent                                                  | 1     |
| 19   | 211- 7    | BALL - steel 1/4"                                               | 2     |
| 20   | C 17444   | SPRING - detent                                                 | 2     |
| 21   | C 17443   | SCREW - detent                                                  | 2     |
| 22   | 195- 521  | WASHER - return                                                 | 1     |
| 23   | 113- 17   | BOLT - valve mounting 1/4" x 1-1/4" NC hex                      | 3     |
| 24   | 131- 1102 | NUT - lock 1/4" NC hex                                          | 3     |
|      | C 18846   | KIT - spring, center (includes items 22, 23, 24, 25, 26 and 27) | 1     |
|      | C 18851   | KIT - detent (includes items 14, 15, 16, 17, 18, 19, 20 and 22) | 1     |

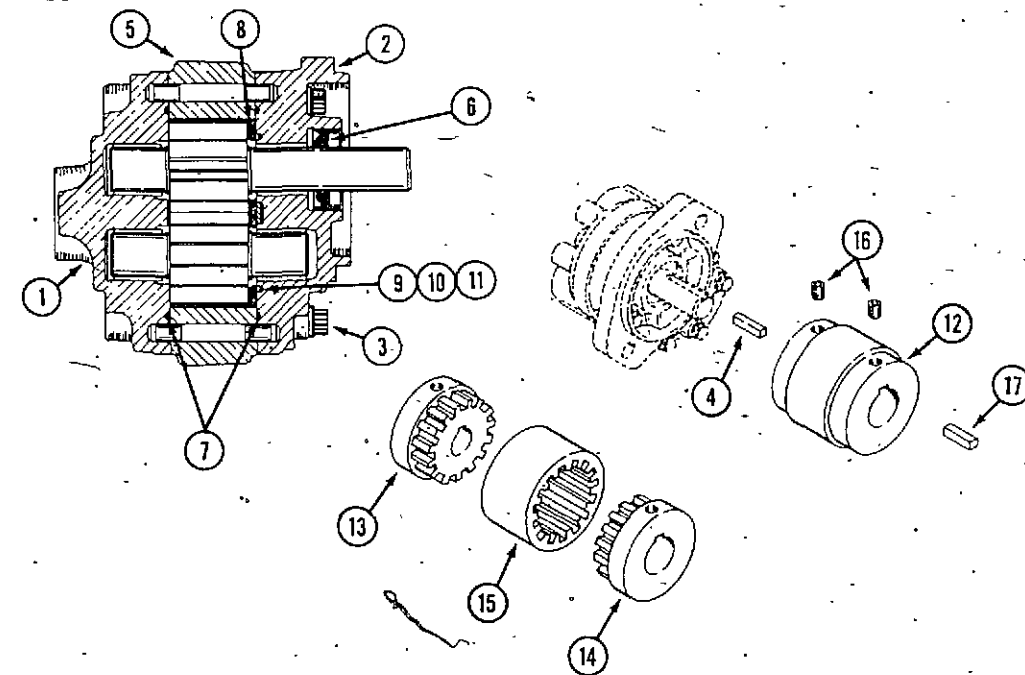
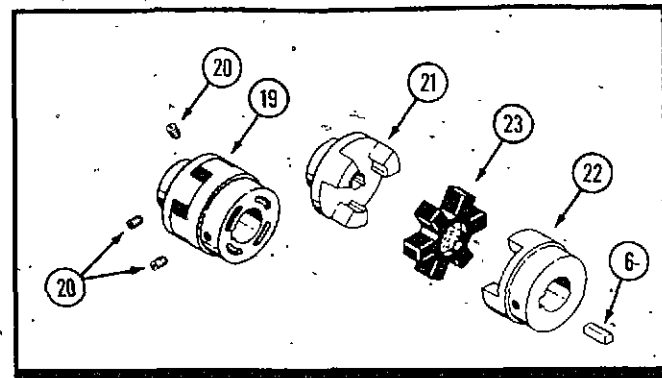
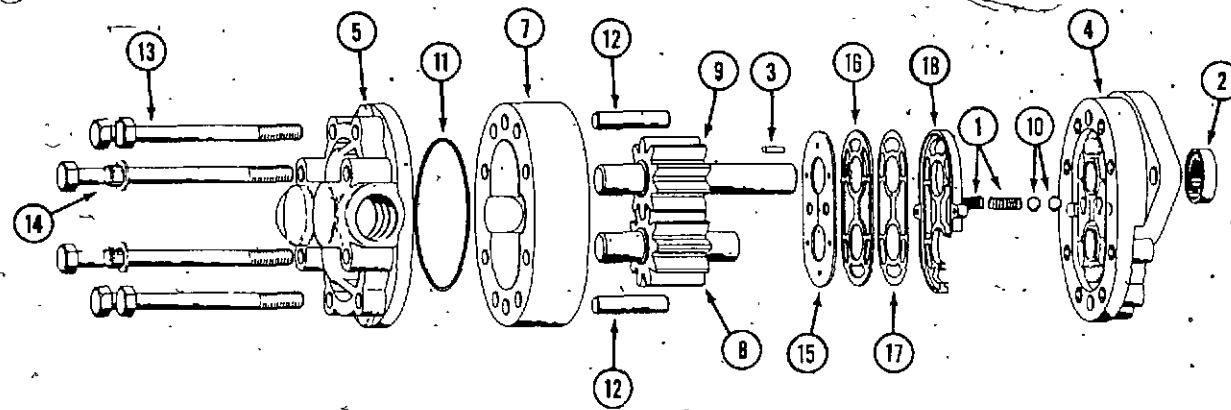
## BUCKET CONTROL LINKAGE

|    |           |                              |   |
|----|-----------|------------------------------|---|
| 1  | C 24445   | BRACKET - pivot              | 1 |
| 2  | C 16714   | BUSHING - pivot bracket      | 1 |
| 3  | C 17596   | LEVER - bucket control       | 1 |
| 4  | C 29045   | KNOB - lever, bucket control | 1 |
| 5  | 195- 533  | WASHER - 1/2"                | 1 |
| 6  | 132- 321  | PIN - cotter 1/8" x 1"       | 1 |
| 7  | C 17587   | LINK - valve 4"              | 1 |
| 8  | C 17588   | LINK - valve 3-3/4"          | 1 |
| 9  | 195- 521  | WASHER - 5/16"               | 2 |
| 10 | 132- 320  | PIN - cotter 3/32" x 3/4"    | 2 |
| 11 | C 12932   | PIN                          | 2 |
| 12 | C 18845   | RETAINER                     | 2 |
| 13 | 113- 3    | BOLT - 1/4" - 20 x 3/4"      | 2 |
| 14 | 131- 1102 | NUT - 1/4" - 20 lock         | 2 |

**HYDRAULIC PUMP AND COUPLING**

(Use before S/N: 648-14076874 - 648BH-14076822)

52



| REF. | PART NO. | DESCRIPTION                                                                      | REQ'D |
|------|----------|----------------------------------------------------------------------------------|-------|
| NSS  |          |                                                                                  |       |
| 1    | C 28709  | PUMP - hydraulic (Cessna) (use C28370 pump, C28371 coupling and 217-179 fitting) | 1     |
| 2    | C 28766  | SPRING                                                                           | 2     |
| 3    | C 28289  | SEAL - shaft                                                                     | 1     |
| 4    | C 28784  | KEY - 3/16" square x .97"                                                        | 1     |
| 5    | C 28782  | COVER - front (includes bushings)                                                | 1     |
| 6    | C 28321  | COVER - rear (includes bushings)                                                 | 1     |
| 7    | C 28781  | KEY - square 1/4" x 3/4"                                                         | 1     |
| 8    | NSS      | BODY - pump                                                                      | 1     |
| 9    | NSS      | GEAR - driven                                                                    | 1     |
| 10   | 211- 306 | GEAR - drive                                                                     | 1     |
| 11   | C 28779  | BALL - 7/32" diameter                                                            | 2     |
| 12   | NSS      | "O" RING - 1/16" x 3"                                                            | 1     |
| 13   | 166- 30  | PIN - dowel 5/16" x 1"                                                           | 2     |
| 14   | 166- 32  | BOLT - 5/16" - 18 x 2" 12 pt. flange                                             | 4     |
| 15   | C 28765  | BOLT - 5/16" - 18 x 2-1/2 12 pt. flange                                          | 4     |
| 16   | C 28780  | DIAPHRAGM                                                                        | 1     |
| 17   | C 28778  | GASKET                                                                           | 1     |
| 18   | C 28764  | PROTECTOR - gasket                                                               | 1     |
|      | C 28813  | SEAL - diaphragm                                                                 | 1     |
| 19   | C 25950  | KIT - seal includes items 1, 2, 10, 11, 15, 16, 17 and 18)                       | 1     |
| 20   | 178- 858 | COUPLING - pump                                                                  | 1     |
| 21   | C 25291  | SCREW - set 5/16" x 3/8"                                                         | 2     |
| 22   | NSS      | HUB                                                                              | 1     |
| 23   | C 18258  | HUB - (use C25950)                                                               | 1     |
|      |          | SPIDER - coupling                                                                | 1     |

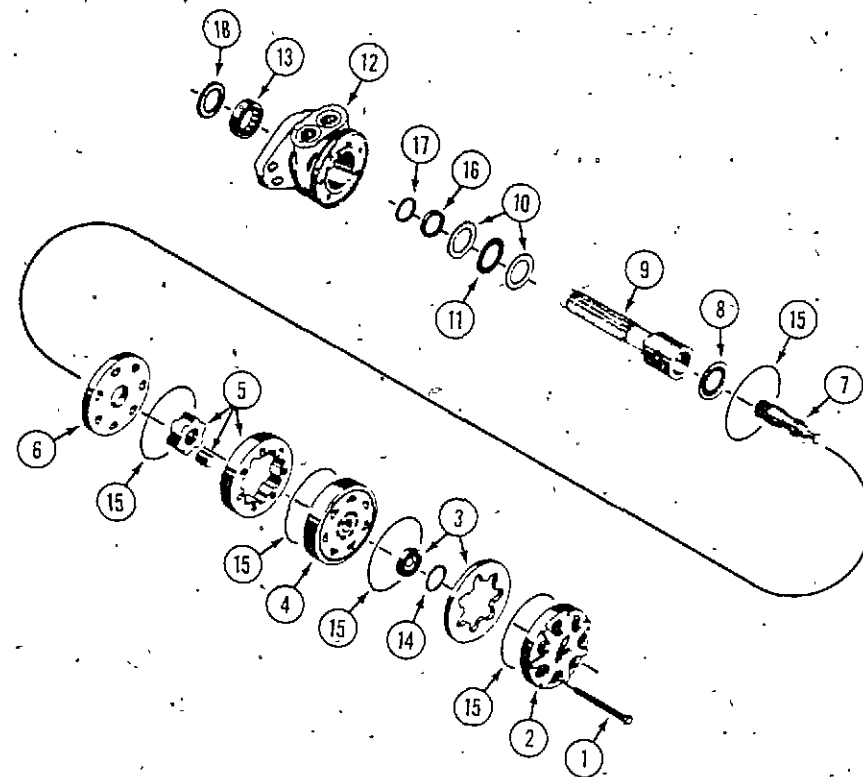
**HYDRAULIC PUMP AND COUPLING**

(Use S/N and after: 648-14076874 648BH-14076822)

|    |          |                                              |   |
|----|----------|----------------------------------------------|---|
| 1  | C 28370  | PUMP - hydraulic                             | 1 |
| 2  | C 28381  | COVER - rear                                 | 1 |
| 3  | C 28382  | COVER - front                                | 1 |
| 4  | 166- 31  | BOLT                                         | 8 |
| 5  | C 28289  | KEY - square 3/16" x .97 (pump shaft)        | 1 |
| 6  | C 30390  | BODY - pump                                  | 1 |
| 7  | C 28384  | KIT - seal                                   | 1 |
| 8  | C 28380  | SEAL - shaft                                 | 1 |
| 9  | C 28383  | "O" RING - body seal                         | 2 |
| 10 | NSS      | PLATE - wear (put bronze side towards gears) | 1 |
| 11 | NSS      | GASKET - back-up                             | 1 |
| 12 | NSS      | "O" RING - molded                            | 1 |
| 13 | NSS      | SEAL - bearing                               | 1 |
| 14 | C 28371  | COUPLING - pump                              | 1 |
| 15 | NSS      | HUB - pump                                   | 1 |
| 16 | NSS      | HUB - engine                                 | 1 |
| 17 | C 28372  | SLEEVE - coupling                            | 1 |
| 18 | 178- 858 | SCREW - set 5/16" x 3/8"                     | 2 |
| 19 | C 28321  | KEY - square 1/4" x 3/4" (engine shaft)      | 1 |

**HYDRAULIC DRIVE MOTOR**

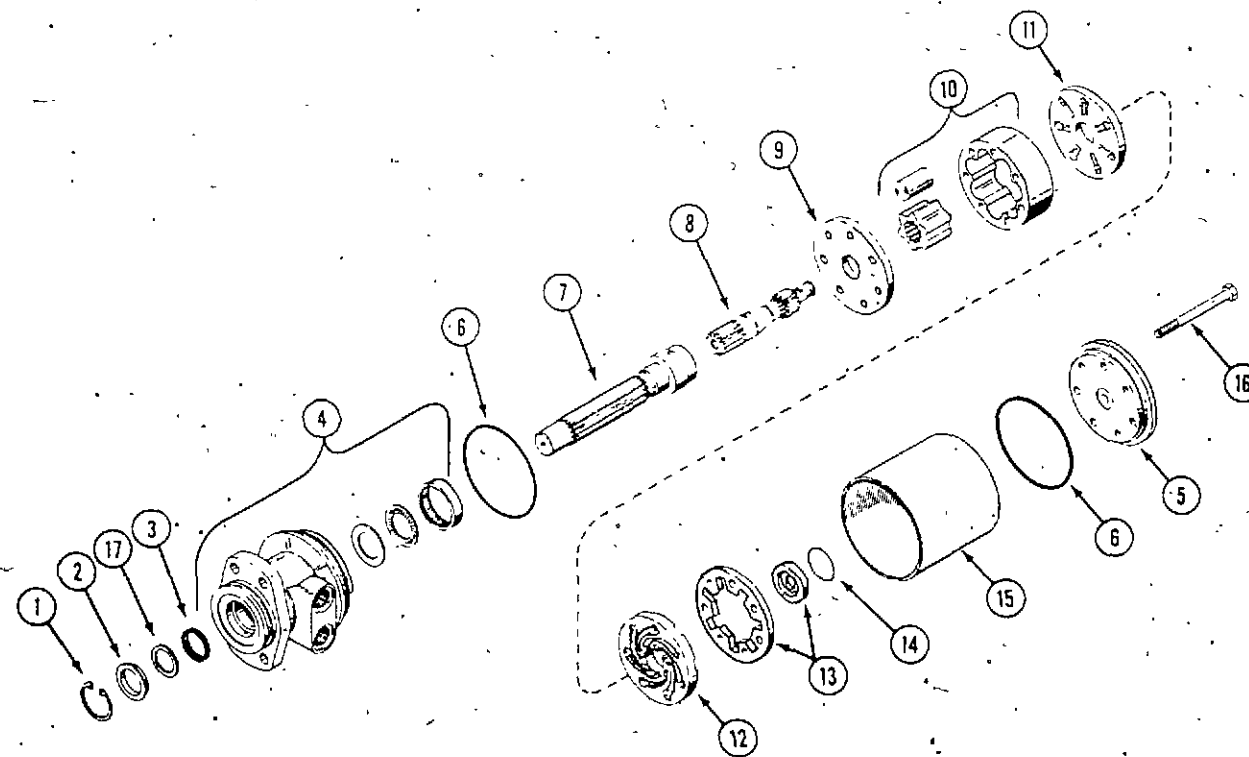
(Use S/N 14114835 and after 648 only)



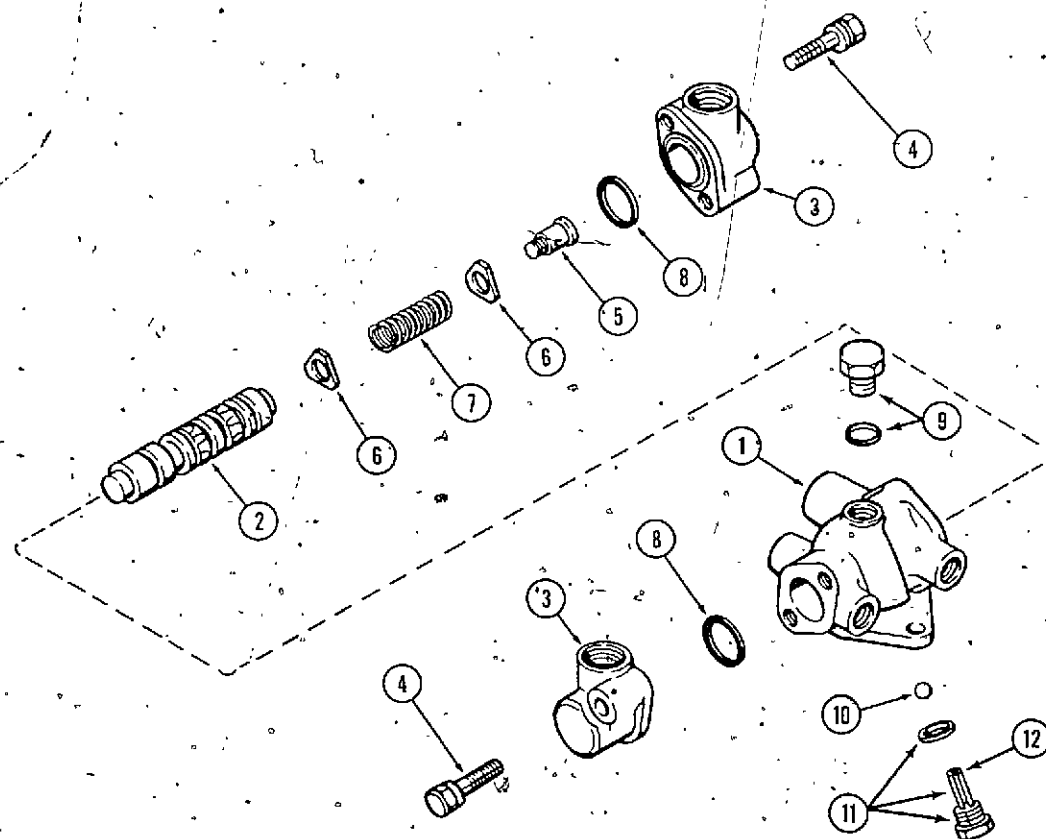
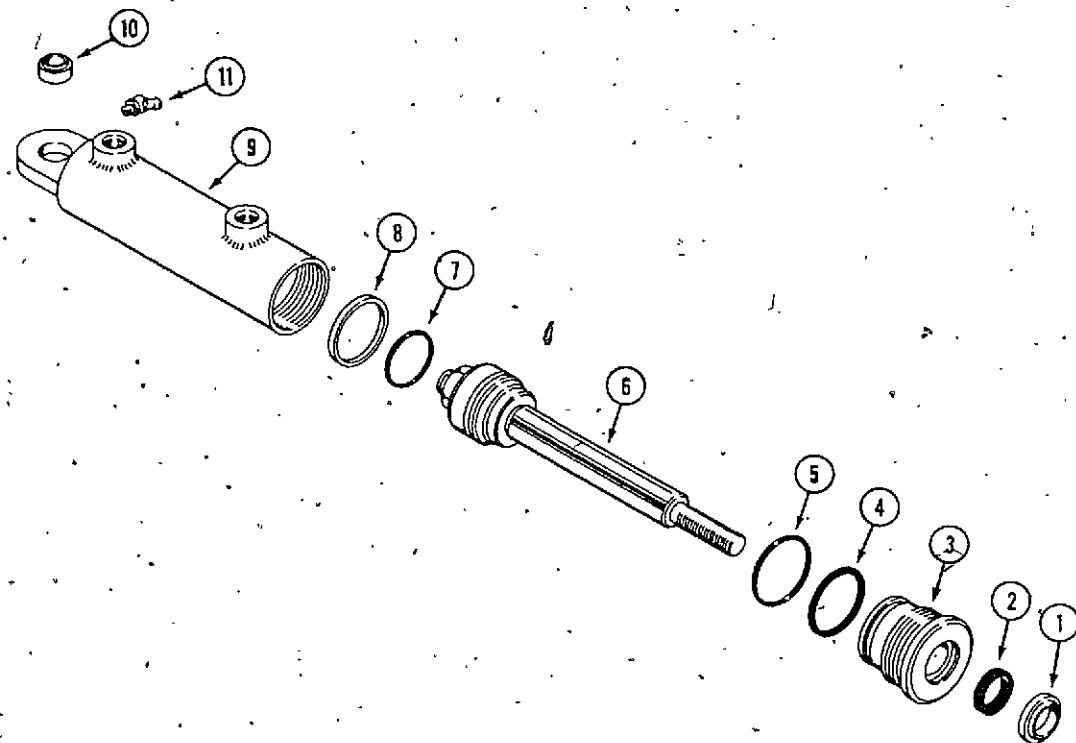
| REF. | PART NO. | DESCRIPTION               | REQ'D |
|------|----------|---------------------------|-------|
| 1    | C 30940  | MOTOR - hydraulic         | 1     |
| 2    | C 31327  | BOLT - 3/8" - 24 x 4-5/8" | 7     |
| 3    | C 31309  | COVER - end               | 1     |
| 4    | C 31310  | COMMUTATOR AND RING SET   | 1     |
| 5    | C 31311  | MANIFOLD                  | 1     |
| 6    | C 31313  | ROTOR ASSEMBLY            | 1     |
| 7    | C 31314  | PLATE - wear              | 1     |
| 8    | C 31316  | LINK - drive              | 1     |
| 9    | C 31317  | BEARING - thrust          | 1     |
| 10   | C 31318  | SHAFT - coupling          | 7     |
| 11   | C 31319  | WASHER - thrust           | 2     |
| 12   | C 31320  | BEARING - thrust          | 1     |
| 13   | C 31321  | HOUSING - drive end       | 1     |
| 14   | C 31322  | BEARING - outer           | 1     |
| 15   | C 31323  | KIT - seal                | 1     |
| 16   | NSS      | SEAL - commutator ring    | 1     |
| 17   | NSS      | SEAL - ring               | 5     |
| 18   | NSS      | SEAL - ring               | 1     |
| 19   | NSS      | WASHER - backup           | 1     |
| 20   | NSS      | SEAL - dirt (not used)    | 1     |

**HYDRAULIC DRIVE MOTOR (all 648BH)**

(Use before S/N 14114835 on 648)



| REF. | PART NO. | DESCRIPTION                                                    | REQ'D |
|------|----------|----------------------------------------------------------------|-------|
| 1    | C 14655  | MOTOR - hydraulic                                              | 1     |
| 2    | C 16516  | RING - retaining                                               | 1     |
| 3    | C 19040  | SPACER - (see kit below)                                       | 1     |
| 4    | C 25048  | SEAL - oil (see kit below)                                     | 1     |
| 5    | C 14827  | HOUSING ASSEMBLY                                               | 1     |
| 6    | C 14837  | END CAP                                                        | 1     |
| 7    | C 18382  | SEAL - (see kit below)                                         | 2     |
| 8    | C 14828  | SHAFT - coupling                                               | 1     |
| 9    | C 14829  | DRIVE LINK                                                     | 1     |
| 10   | C 14830  | PLATE - wear                                                   | 1     |
| 11   | C 14831  | ROTOR ASSEMBLY                                                 | 1     |
| 12   | C 28703  | PLATE - manifold                                               | 1     |
| 13   | C 28874  | MANIFOLD                                                       | 1     |
| 14   | C 28701  | COMMUTATOR AND RING SET                                        | 1     |
| 15   | C 19041  | RING - sealing (see kit below)                                 | 1     |
| 16   | C 14836  | SLEEVE                                                         | 1     |
| 17   | C 14838  | BOLT - 3/8" x 4-3/8" NF hex                                    | 7     |
| 18   | C 19212  | WASHER - back up, .010" (see kit below)                        | 1     |
| 19   | C 29732  | KIT - "O" ring and seal (includes items 1, 2, 3, 6, 14 and 17) | 1     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## CYLINDER (POWER STEERING)

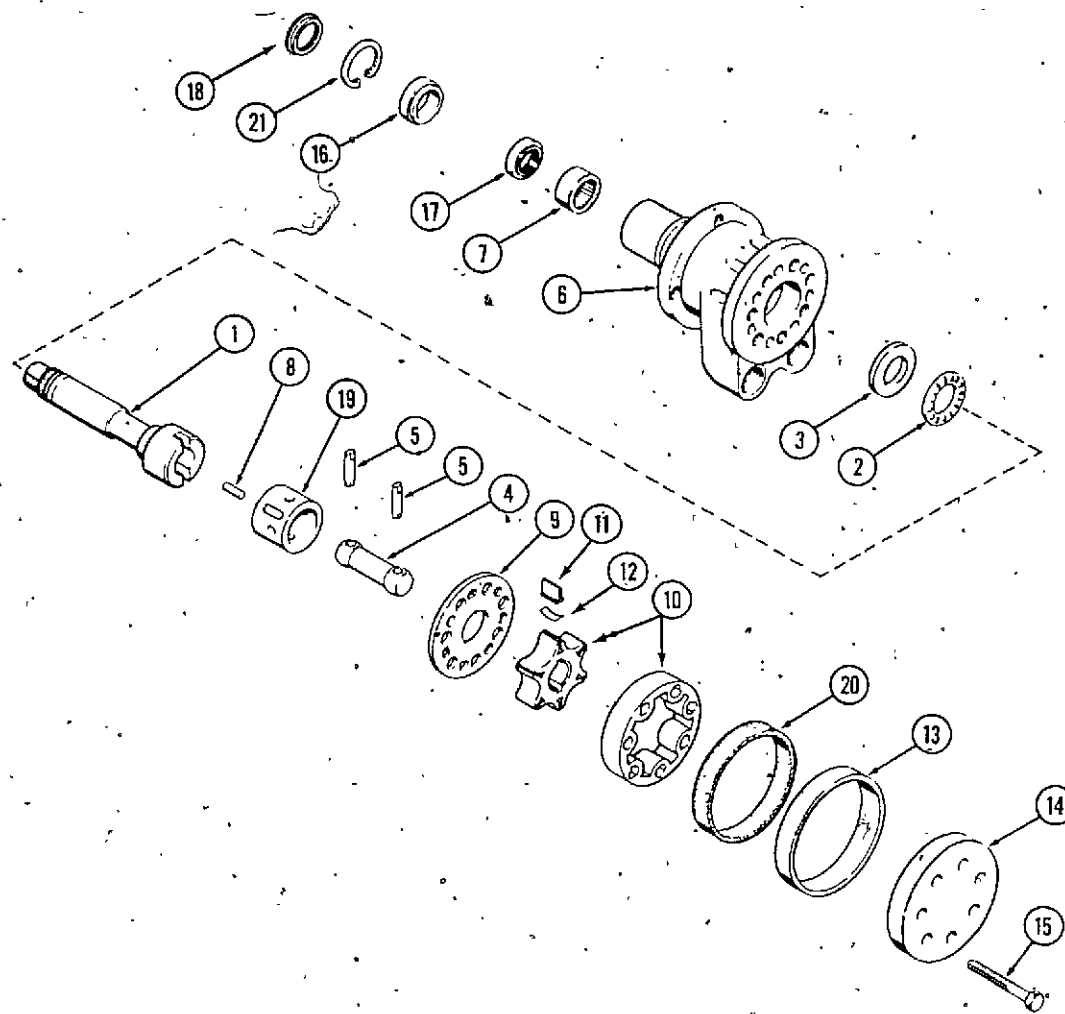
(Use before S/N 14076828)

| REF. | PART NO. | DESCRIPTION                                        | REQ'D |
|------|----------|----------------------------------------------------|-------|
|      | C 26003  | CYLINDER - steering                                | 1     |
| 1    | C 28762  | SEAL - dust, rod wiper                             | 1     |
| 2    | C 28763  | SEAL - U-cup                                       | 1     |
| 3    | C 26177  | HEAD - cylinder                                    | 1     |
| 4    | C 28747  | WASHER - backup                                    | 1     |
| 5    | C 28743  | O-RING - cylinder head                             | 1     |
| 6    | C 26178  | ROD AND PISTON ASSEMBLY - (includes items 7 and 8) | 1     |
| 7    | C 28757  | O-RING - piston                                    | 1     |
| 8    | C 28761  | RING - backup                                      | 1     |
| 9    | NSS      | TUBE - cylinder (use C26003 cylinder)              | 1     |
| 10   | C 26179  | BEARING                                            | 1     |
| 11   | 219- 37  | FITTING - grease                                   | 1     |

## CONTROL VALVE (POWER STEERING)

(Use before S/N 14076821)

|    |           |                                                  |   |
|----|-----------|--------------------------------------------------|---|
|    | C 28238   | VALVE - control, steering                        | 1 |
| 1  | NSS       | BODY - valve (use C28238 valve)                  | 1 |
| 2  | NSS       | SPOOL - valve (use C28238 valve)                 | 1 |
| 3  | C 28771   | CAP - end                                        | 2 |
| 4  | 13- 632   | BOLT - end cap                                   | 4 |
| 5  | C 28770   | SCREW - centering                                | 1 |
| 6  | C 28768   | WASHER                                           | 2 |
| 7  | C 28769   | SPRING - centering                               | 1 |
| 8  | C 28777   | SEAL - end cap                                   | 2 |
| 9  | 218- 5154 | PLUG - top (includes 218-5004 "O" ring)          | 1 |
| 10 | 211- 7    | BALL - check 1/4"                                | 1 |
| 11 | C 29012   | PLUG - relief valve (includes 518-5002 "O" ring) | 1 |
| 12 | 138- 60   | PIN - roll 1/8" x 15/16"                         | 1 |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## MANUAL PUMP (POWER STEERING)

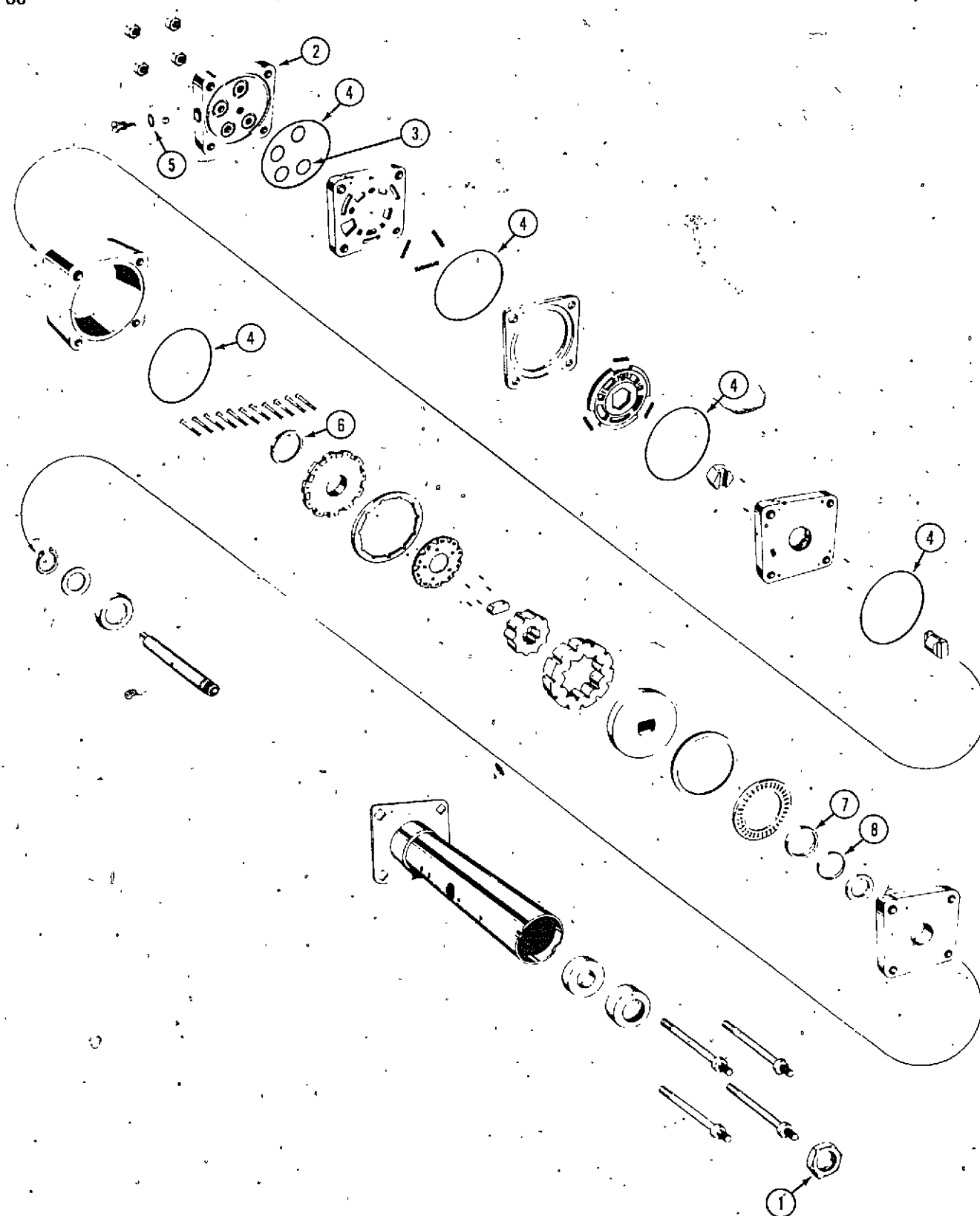
(Use before S/N 14076821)

| REF. | PART NO. | DESCRIPTION                              | REQ'D |
|------|----------|------------------------------------------|-------|
| 1    | C 26002  | PUMP - manual                            | 1     |
| 2    | C 28767  | SHAFT - steering                         | 1     |
| 3    | C 28675  | BEARING - thrust                         | 1     |
| 4    | C 28773  | RACE - bearing                           | 1     |
| 5    | C 28774  | LINK - rotor drive                       | 1     |
| 6    | C 28775  | PIN - link                               | 1     |
| 7    | NSS      | BODY - pump (use C26002 pump)            | 1     |
| 8    | C 28223  | BEARING - shaft                          | 1     |
| 9    | C 28772  | PIN                                      | 1     |
| 10   | C 28748  | SPACER - rotor                           | 1     |
| 11   | C 28751  | ROTOR SET - matched                      | 1     |
| 12   | NSS      | VANE - rotor                             | 6     |
| 13   | NSS      | SPRING - vane                            | 6     |
| 14   | C 28745  | RETAINER - rotor seal                    | 1     |
| 15   | C 28776  | COVER - end                              | 1     |
| 16   | 28-528   | BOLT - end cover 5/16" x 1-3/4" N.C. hex | 7     |
| 17   | C 28750  | KIT - seal                               | 1     |
| 18   | NSS      | SPACER                                   | 1     |
| 19   | NSS      | PACKING                                  | 1     |
| 20   | NSS      | SEAL - dust                              | 1     |
| 21   | C 28749  | COMMUTATOR                               | 1     |
|      | C 28746  | SEAL - rotor                             | 1     |
|      | C 28744  | RING - retaining                         | 1     |

**MANUAL PUMP (POWER STEERING)**

(Use S/N 14076821 and after)

| REF. | PART NO. | DESCRIPTION              | REQ'D |
|------|----------|--------------------------|-------|
|      | C 27992  | PUMP - steering, manual  | 1     |
| 1    | 129- 127 | NUT - 5/8" - 18          | 1     |
| 2    | G 30280  | COVER - end (with ports) | 1     |
|      | C 30281  | KIT - seal               | 1     |
| 3    | NSS      | "O" RING                 | 4     |
| 4    | NSS      | RING - seal              | 5     |
| 5    | NSS      | "O" RING                 | 1     |
| 6    | NSS      | SEAL - commutator        | 1     |
| 7    | NSS      | SEAL - face              | 1     |
| 8    | NSS      | RING - back-up           | 1     |



### CYLINDER - LIFT ARM

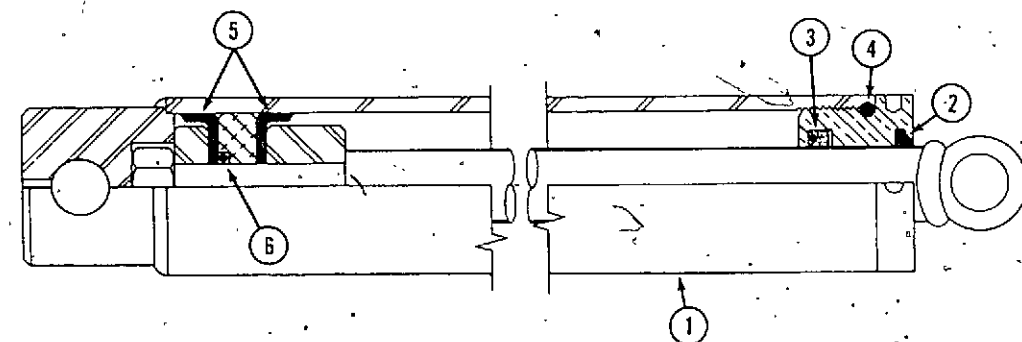
(use before S/N 14063829)

| REF. | PART NO. | DESCRIPTION                                               | REQ'D |
|------|----------|-----------------------------------------------------------|-------|
|      | NSS      | CYLINDER - lift arm (use C26433 cylinder and C26435 tube) | 2     |
| 1    | C 28785  | RING - retaining                                          | 1     |
| 2    | C 28786  | SPACER                                                    | 1     |
| 3    | NSS      | RING - retaining                                          | 1     |
| 4    | C 18575  | ROD - cylinder                                            | 1     |
| 5    | NSS      | SEAL - "O" ring, rod                                      | 1     |
| 6    | NSS      | WIPER - rod                                               | 2     |
| 7    | NSS      | SEAL - "O" ring, rod                                      | 1     |
| 8    | C 28789  | HEAD - cylinder                                           | 1     |
| 9    | NSS      | SEAL - head                                               | 1     |
| 10   | C 28790  | BUSHING - head                                            | 1     |
| 11   | C 28787  | PISTON - cylinder                                         | 1     |
| 12   | NSS      | WASHER - backup, piston                                   | 2     |
| 13   | NSS      | SEAL - "O" ring, piston                                   | 1     |
| 14   | 129- 166 | NUT - jam                                                 | 1     |
| 15   | C 18576  | BODY - cylinder                                           | 1     |
| 16   | C 28788  | KIT - seal                                                | 1     |

### CYLINDER - BUCKET

(use before S/N 14063831)

|    |          |                                                         |   |
|----|----------|---------------------------------------------------------|---|
|    | NSS      | CYLINDER - bucket (use C26432 cylinder and C26439 tube) | 1 |
| 1  | C 18573  | BODY - cylinder                                         | 1 |
| 2  | 131- 690 | NUT - lock                                              | 1 |
| 3  | NSS      | WASHER - backup, piston                                 | 2 |
| 4  | NSS      | SEAL - "O" ring, piston                                 | 1 |
| 5  | C 28758  | PISTON - cylinder                                       | 1 |
| 6  | C 18486  | HEAD ASSEMBLY                                           | 1 |
| 7  | NSS      | BUSHING - head                                          | 1 |
| 8  | NSS      | HEAD - cylinder                                         | 1 |
| 9  | NSS      | SEAL - "O" ring, rod                                    | 1 |
| 10 | NSS      | WASHER - backup                                         | 2 |
| 11 | NSS      | SEAL - "O" ring, rod                                    | 1 |
| 12 | C 18572  | ROD - cylinder                                          | 1 |
| 13 | NSS      | RING - retaining                                        | 1 |
| 14 | C 28759  | SPACER                                                  | 1 |
| 15 | C 28760  | RING - retaining                                        | 1 |
| 16 | NSS      | SEAL - "O" ring, head                                   | 1 |
| 17 | C 18574  | KIT - seal                                              | 1 |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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## CYLINDER - LIFT ARM

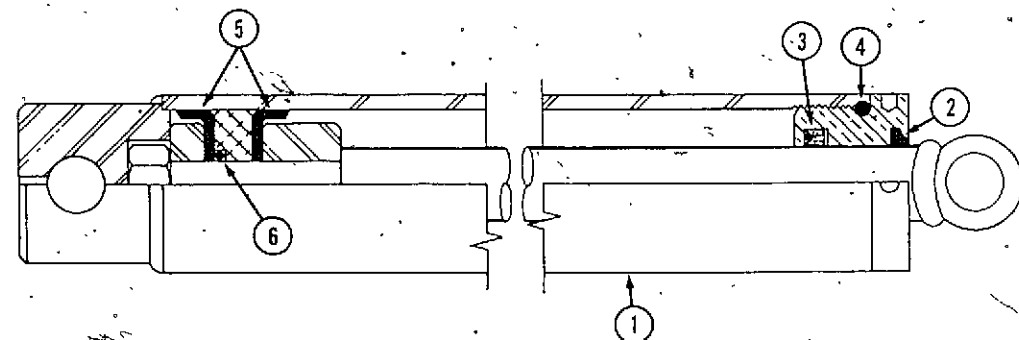
(use S/N 14063829 and after)

| REF. | PART NO. | DESCRIPTION             | REQ'D |
|------|----------|-------------------------|-------|
| 1    | C 26433  | CYLINDER - lift arm     | 2     |
|      | C 26445  | KIT - seal              | 1     |
| 2    | NSS      | SEAL - wiper            | 1     |
| 3    | NSS      | "O" RING AND SEAL - rod | 1     |
| 4    | NSS      | "O" RING - body         | 1     |
| 5    | NSS      | SEAL - piston           | 2     |
| 6    | NSS      | "O" RING - piston       | 1     |

## CYLINDER - BUCKET

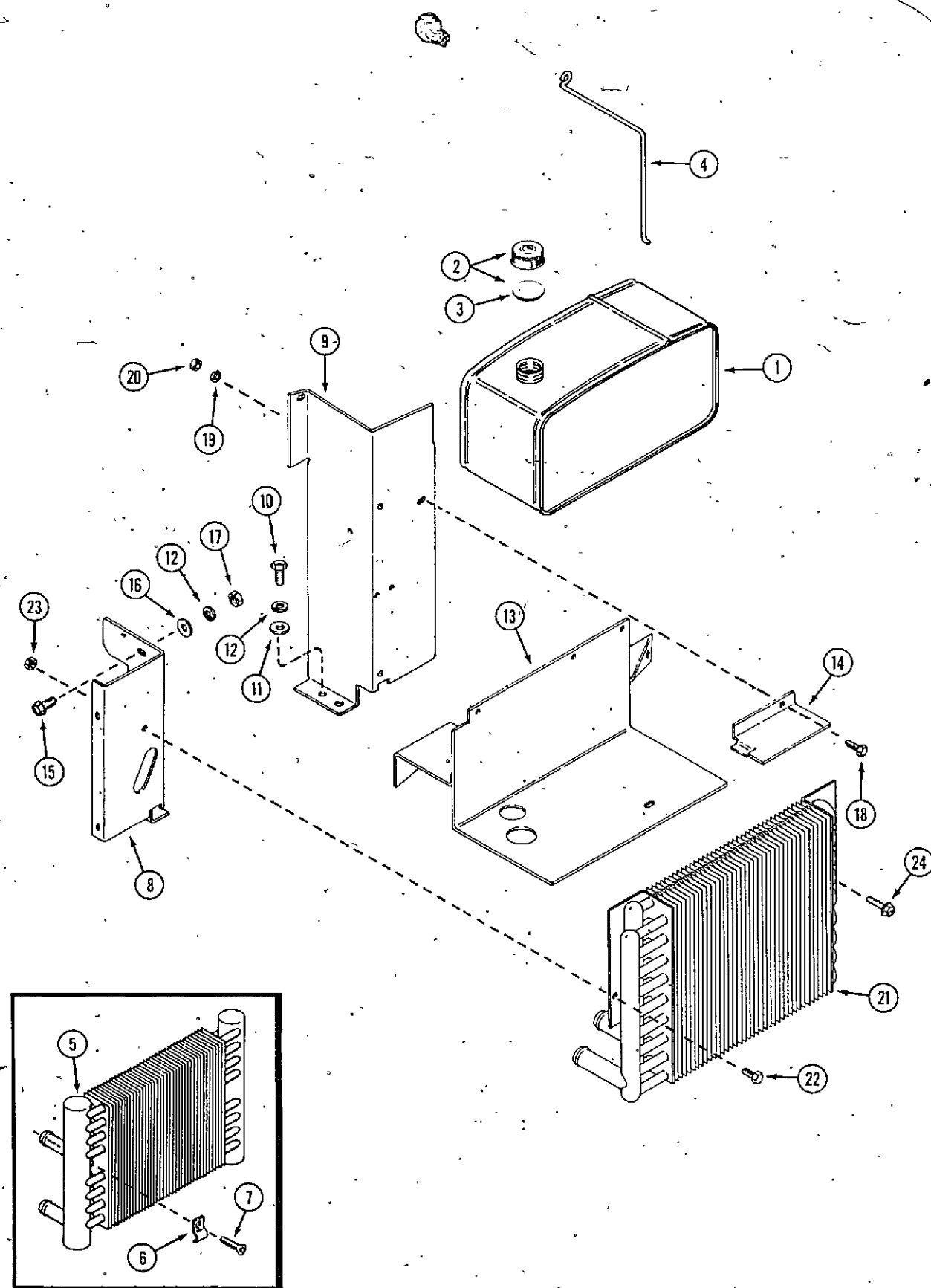
(use S/N 14063831 and after)

|   |         |                         |   |
|---|---------|-------------------------|---|
| 1 | C 26432 | CYLINDER - bucket       | 1 |
|   | C 26444 | KIT - seal              | 1 |
| 2 | NSS     | SEAL - wiper            | 1 |
| 3 | NSS     | "O" RING AND SEAL - rod | 1 |
| 4 | NSS     | "O" RING - body         | 1 |
| 5 | NSS     | SEAL - piston           | 2 |
| 6 | NSS     | "O" RING - piston       | 1 |

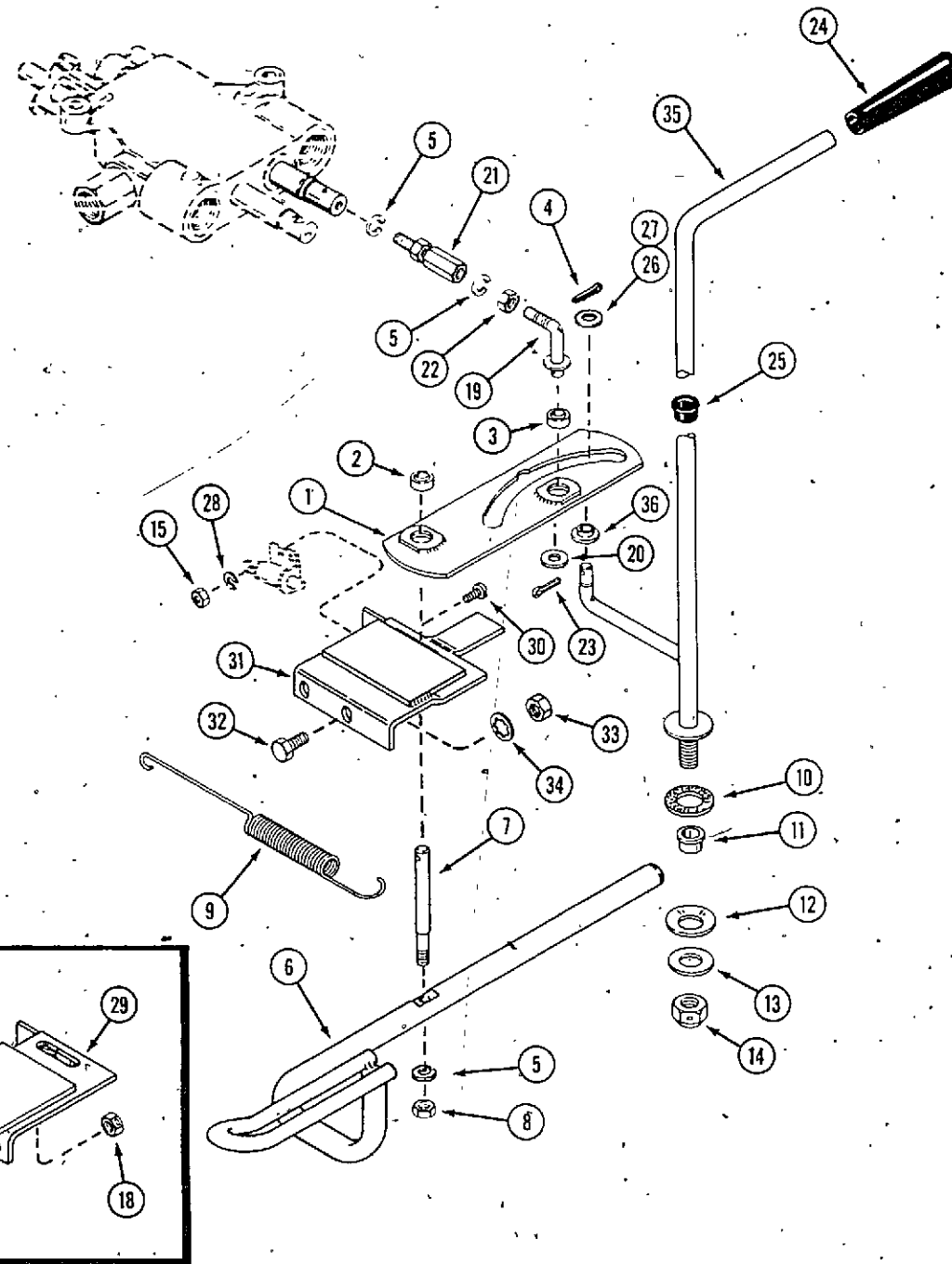


## HYDRAULIC RESERVOIR AND HEAT EXCHANGER MOUNTING

| REF. | PART NO.  | DESCRIPTION                                              | REQ'D |
|------|-----------|----------------------------------------------------------|-------|
| 1    | C 25952   | RESERVOIR - hydraulic oil                                | 1     |
| 2    | C 25237   | CAP - reservoir 1.5"                                     | 1     |
| 2    | C 26133   | CAP - reservoir 1.75"                                    | 1     |
| 3    | NSS       | INSERT - reservoir                                       | 1     |
| 4    | C 25954   | STRAP - tank mounting                                    | 1     |
| 5    | C 25376   | EXCHANGER - heat (use before S/N 14030233)               | 1     |
| 6    | C 25164   | CLIP - mounting                                          | 4     |
| 7    | 187- 1252 | SCREW - 1/4" - 20 x 1-1/2" Phillips, self-tapping        | 2     |
| 8    | C 25979   | MOUNT - heat exchanger R.H. (use before S/N 14030233)    | 1     |
| 8    | C 26451   | MOUNT - heat exchanger R.H. (use S/N 14030233 and after) | 1     |
| 9    | C 26452   | MOUNT - heat exchanger L.H.                              | 1     |
| 10   | 113- 102  | BOLT - 5/16" - 18 x 3/4" hex                             | 4     |
| 11   | 195- 103  | WASHER - 5/16"                                           | 4     |
| 12   | 192- 20   | LOCK WASHER - 5/16"                                      | 6     |
| 13   | C 25985   | SUPPORT - reservoir                                      | 1     |
| 14   | C 25988   | BAFFLE - corner, L.H.                                    | 1     |
| 15   | 121- 106  | BOLT - 5/16" - 18 x 1/2"                                 | 2     |
| 16   | 195- 521  | WASHER - 5/16"                                           | 2     |
| 17   | 129- 102  | NUT - 5/16" - 18                                         | 1     |
| 18   | 113- 2    | BOLT - 1/4" - 20 x 5/8"                                  | 4     |
| 19   | 192- 19   | LOCK WASHER - 1/4"                                       | 4     |
| 20   | 129- 101  | NUT - 1/4" - 20                                          | 4     |
| 21   | C 26456   | EXCHANGER - heat (use S/N 14030233 and after)            | 1     |
| 22   | 113- 1    | BOLT - 1/4" - 20 x 1/2" hex                              | 1     |
| 23   | 131- 1180 | NUT - lock 1/4" - 20                                     | 1     |
| 24   | 187- 1036 | SCREW - 1/4" - 20 x 1/2" self tapping                    | 1     |



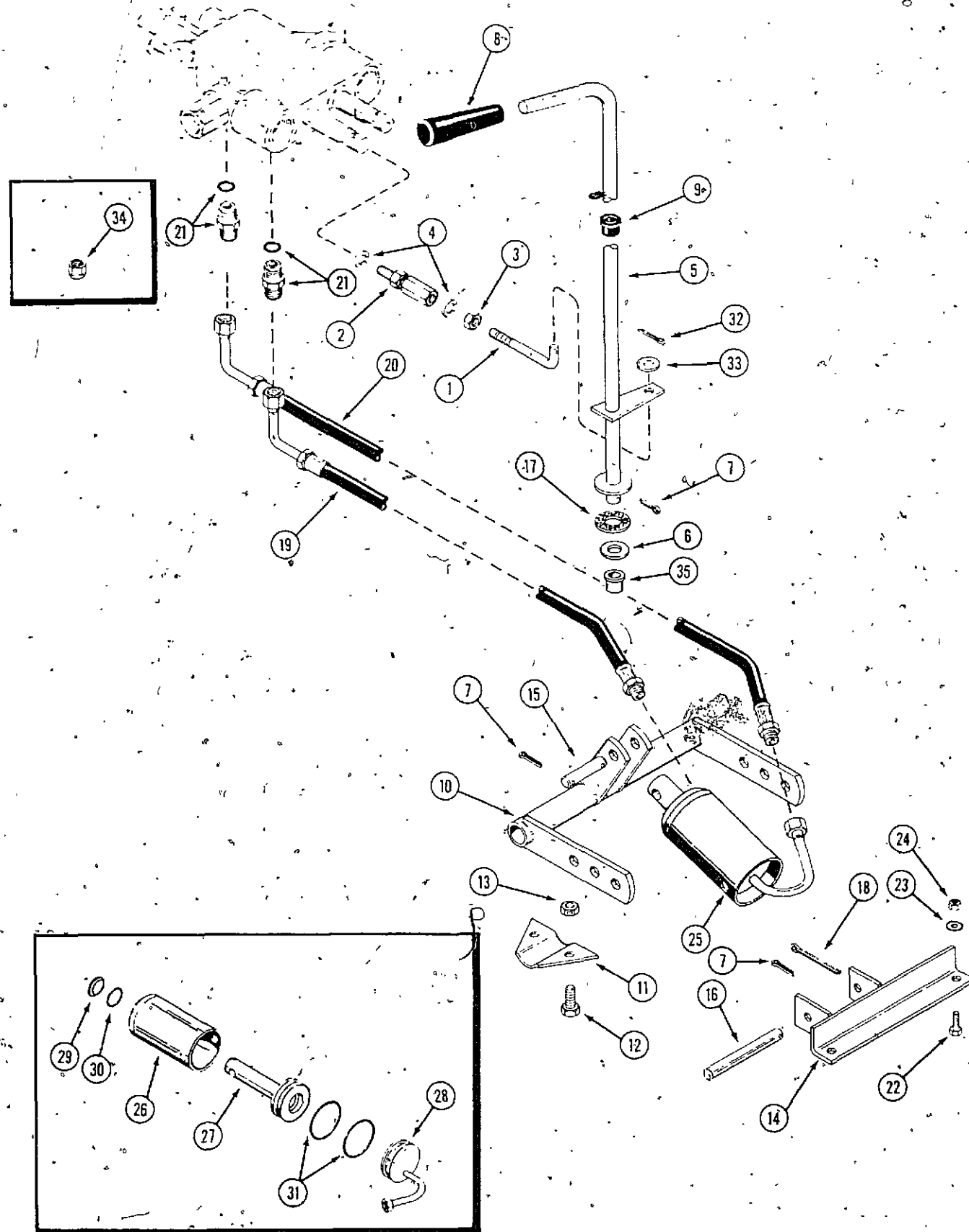
## TRAVEL CONTROL LINKAGE

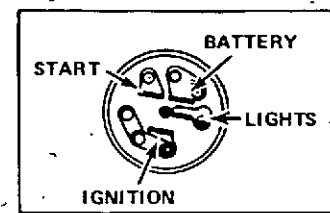


| REF. | PART NO. | DESCRIPTION                                                         | REQ'D |
|------|----------|---------------------------------------------------------------------|-------|
| 1    | C 29801  | ARM - control (also reqs. C29765, C29803 before S/N 14098394)       | 1     |
| 2    | C 29764  | BUSHING - ball (use S/N 14098394 and after)                         | 1     |
| 3    | C 29800  | BUSHING - ball (use S/N 14098394 and after)                         | 1     |
| 4    | 132- 334 | PIN - cotter 1/8" x 3/4"                                            | 1     |
| 5    | 192- 20  | LOCK WASHER - 5/16"                                                 | 3     |
| 6    | C 26680  | PEDAL - motion control                                              | 1     |
| 7    | C 26424  | ROD pedal control                                                   | 1     |
| 8    | 129- 102 | NUT - 5/16" NC hex                                                  | 1     |
| 9    | C 18277  | SPRING - pedal return                                               | 1     |
| 10   | C 17551  | DISC - friction                                                     | 1     |
| 11   | C 26266  | BUSHING - nylon                                                     | 1     |
| 12   | C 18391  | WASHER - spring                                                     | 1     |
| 13   | 195- 533 | WASHER - 5/8"                                                       | 3     |
| 14   | 131- 165 | NUT - 1/2" NC hex                                                   | 2     |
| 15   | 129- 37  | NUT - #10 - 32                                                      | 2     |
| 16   | NSS      | BRACKET - guide (use C29765)                                        | 1     |
| 17   | 113- 103 | BOLT - 5/16" x 1" NC hex                                            | 2     |
| 18   | 131- 176 | NUT - lock 5/16" NC hex                                             | 2     |
| 19   | C 29803  | ROD - valve control (also reqs. C29801, C29765 before S/N 14098394) | 1     |
| 20   | 195- 518 | WASHER - 1/4" (use before S/N 14098394)                             | 1     |
| 20   | 195- 521 | WASHER - 5/16" (use S/N 14098394 and after)                         | 1     |
| 21   | C 19025  | BALL JOINT                                                          | 1     |
| 22   | 129- 122 | NUT - 5/16" NF hex                                                  | 1     |
| 23   | 132- 320 | PIN - cotter 3/32" x 3/4" (use before S/N 14098394)                 | 1     |
| 23   | 132- 333 | PIN - cotter 1/8" x 5/8" (use S/N 14098394 and after)               | 1     |
| 24   | C 29047  | KNOB - control lever                                                | 1     |
| 25   | 353- 442 | BUSHING - lever                                                     | 1     |
| 26   | C 19376  | WASHER - spacer, 3/32"                                              | UAR   |
| 27   | C 19377  | WASHER - spacer, 1/32"                                              | UAR   |
| 28   | 192- 18  | LOCK WASHER - #10                                                   | 2     |
| 29   | NSS      | BRACKET - valve control (use C29765)                                | 1     |
| 30   | 182- 528 | SCREW - #10 - 32 x 1/2"                                             | 2     |
| 31   | C 29765  | BRACKET - valve control                                             | 1     |
| 32   | 113- 102 | BOLT - 5/16" x 3/4" N.C. hex                                        | 2     |
| 33   | 129- 102 | NUT - 5/16" - 18 N.C. hex                                           | 2     |
| 34   | 193- 29  | LOCK WASHER - 5/16" (internal tooth)                                | 2     |
| 35   | C 26168  | LEVER - direction control                                           | 1     |
| 36   | C 23514  | FOLLOWER - cam                                                      | 1     |

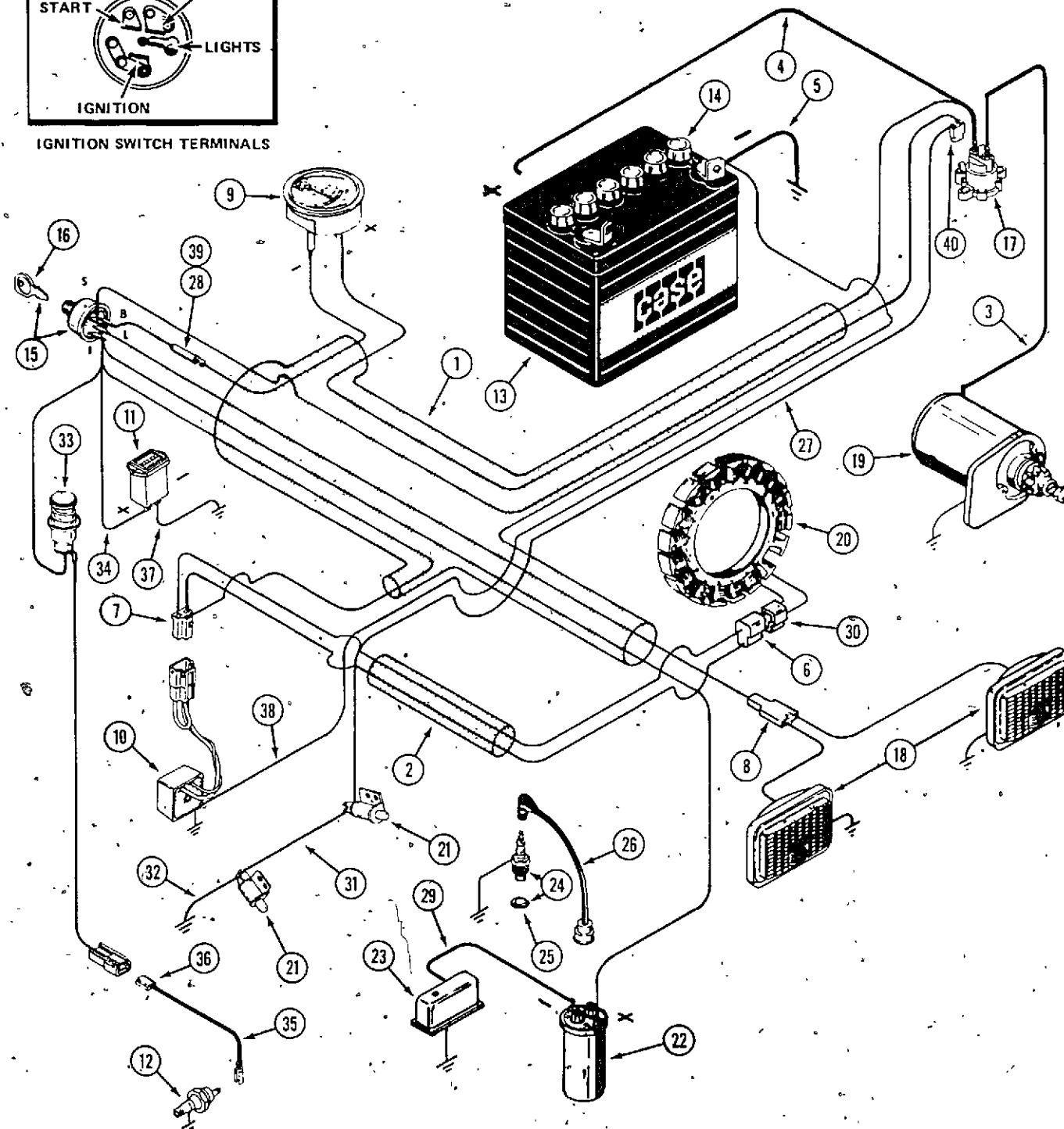
## HYDRAULIC LIFT (648)

| REF. | PART NO.  | DESCRIPTION                                                       | REQ'D |
|------|-----------|-------------------------------------------------------------------|-------|
| 1    | C 19384   | ROD - lift control                                                | 1     |
| 2    | C 19025   | BALL JOINT                                                        | 1     |
| 3    | 129- 122  | NUT - 5/16" NF hex                                                | 4     |
| 4    | 192- 20   | LOCK WASHER - 5/16"                                               | 2     |
| 5    | C 26419   | LEVER - lift control                                              | 1     |
| 6    | 195- 533  | WASHER - 5/8"                                                     | 4     |
| 7    | 132- 310  | PIN - cotter 1/8" x 1"                                            | 3     |
| 8    | C 29045   | KNOB - lift lever                                                 | 1     |
| 9    | C 26266   | BUSHING - lever                                                   | 1     |
| 10   | C 17585   | GROSS SHAFT ASSEMBLY                                              | 1     |
| 11   | C 17250   | BRACKET - clamp                                                   | 2     |
| 12   | 113- 207  | BOLT - 3/8" x 1" NC hex                                           | 4     |
| 13   | 131- 1181 | NUT - lock 3/8" NC hex                                            | 4     |
| 14   | C 26187   | BRACKET - cylinder mounting (also use C28702 before S/N 14030154) | 1     |
| 15   | C 18251   | PIN - cylinder mounting, rod end                                  | 1     |
| 16   | C 28702   | PIN - cylinder mounting, foot end                                 | 1     |
| 17   | C 17551   | DISC - friction                                                   | 1     |
| 18   | 132- 361  | PIN - cotter 3/16" x 2-1/2" (use before S/N 14030154)             | 1     |
| 19   | C 18154   | HOSE - valve to cylinder, short                                   | 1     |
| 20   | C 18155   | HOSE - valve to cylinder, long                                    | 1     |
| 21   | 218- 5056 | FITTING - valve (includes 218-5004 "O" ring)                      | 2     |
| 22   | 113- 207  | BOLT - 3/8" x 1" NC hex                                           | 2     |
| 23   | 195- 525  | WASHER - 3/8"                                                     | 2     |
| 24   | 131- 1181 | NUT - lock 3/8" NC hex                                            | 2     |
| 25   | NSS       | CYLINDER - hydraulic lift (use C27590)                            | 1     |
| 26   | N S S     | BODY - cylinder                                                   | 1     |
| 27   | N S S     | ROD AND PISTON ASSEMBLY                                           | 1     |
| 28   | N S S     | FOOT - cylinder                                                   | 1     |
| 29   | C 30054   | KIT - seal, cylinder                                              | 1     |
| 30   | N S S     | SEAL                                                              | 1     |
| 31   | N S S     | "O" RING                                                          | 1     |
| 32   | 132- 320  | PIN - cotter 3/32" x 3/4"                                         | 1     |
| 33   | 195- 518  | WASHER - 1/4"                                                     | 1     |
| 34   | 218- 753  | CAP - 37° (648BH)                                                 | 2     |
| 35   | C 26266   | BUSHING - nylon                                                   | 1     |



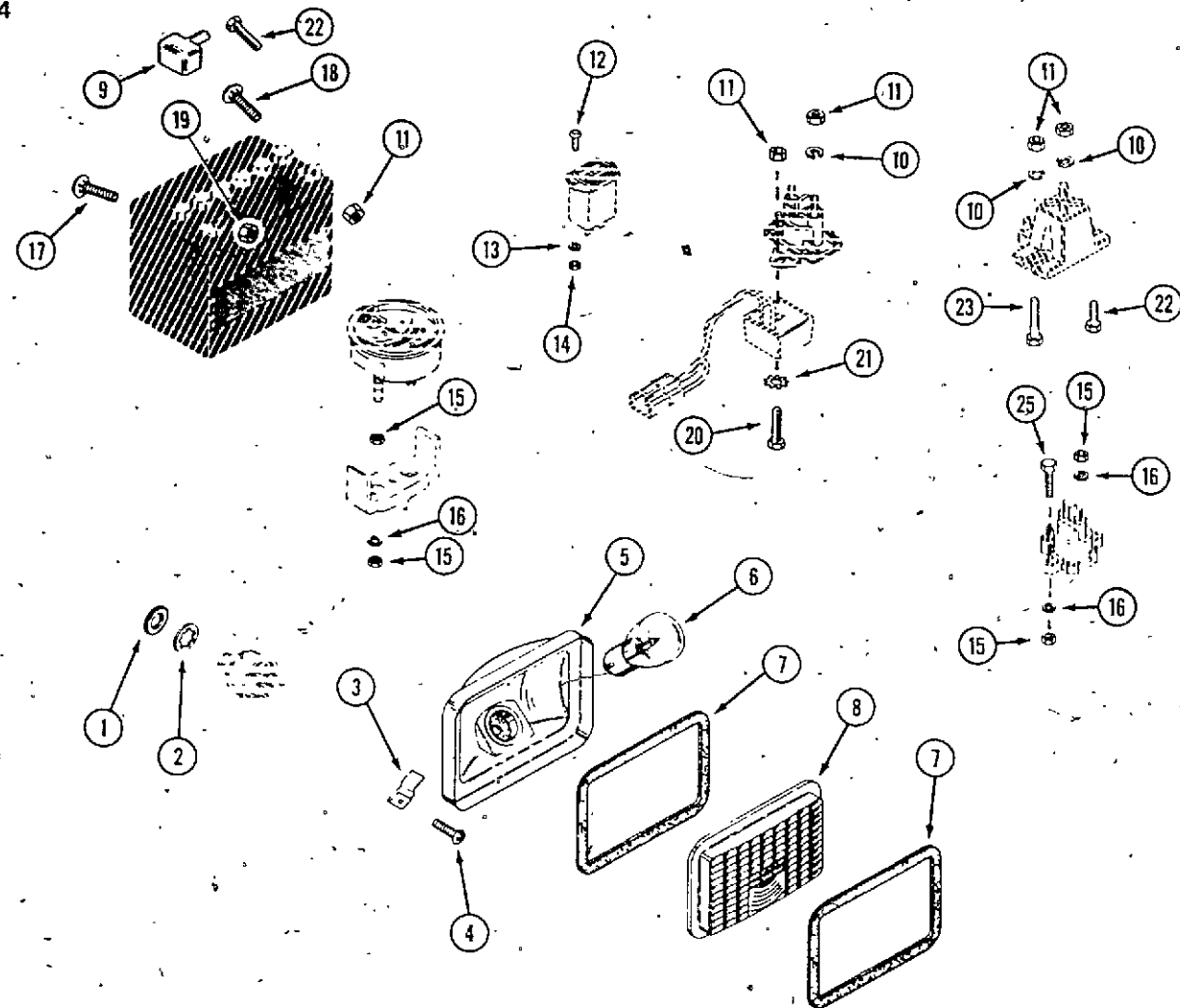


IGNITION SWITCH TERMINALS



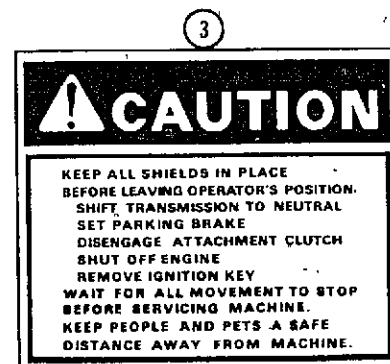
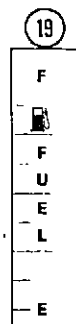
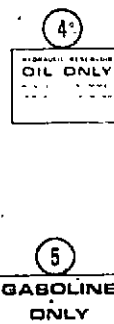
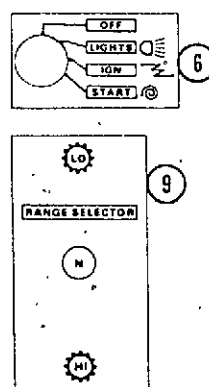
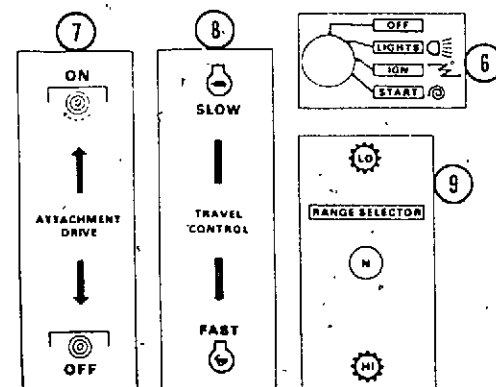
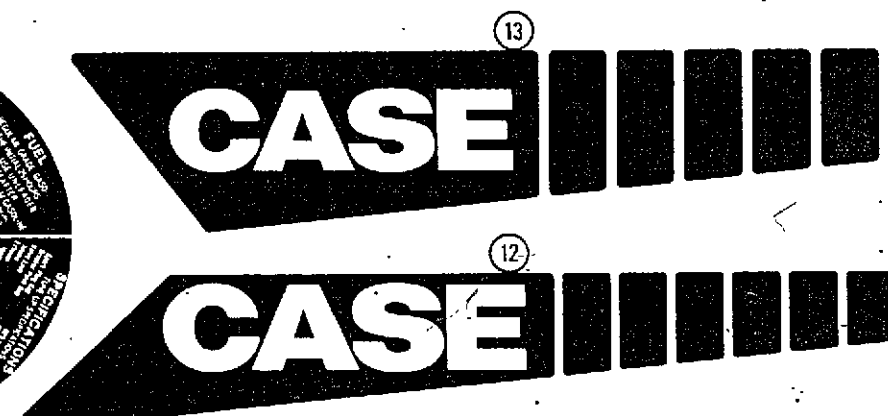
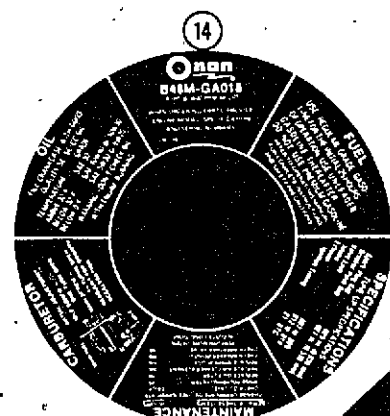
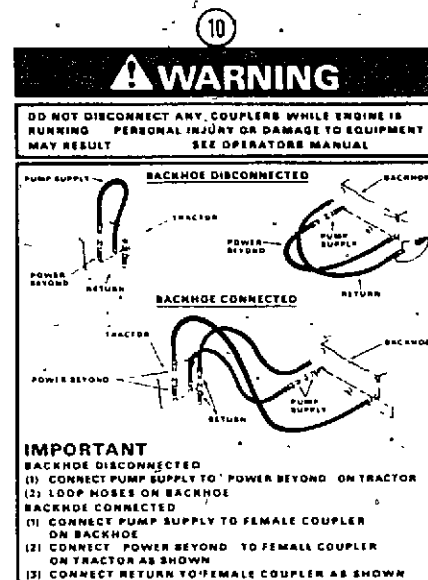
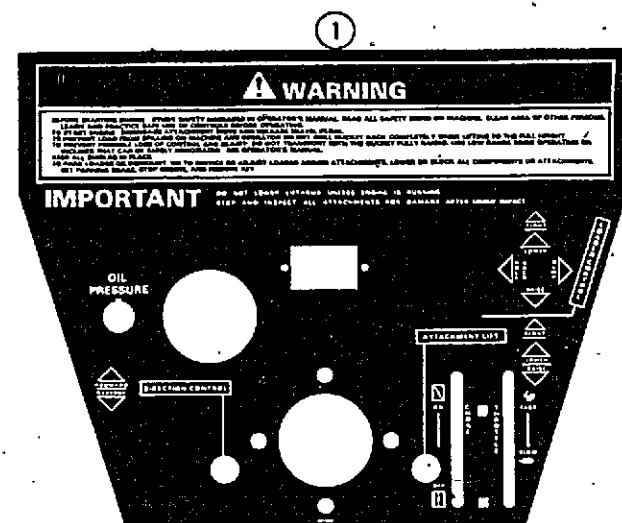
## ELECTRICAL SYSTEM

| REF. | PART NO. | DESCRIPTION                                                                | REQ'D |
|------|----------|----------------------------------------------------------------------------|-------|
| 1    | C 25564  | HARNESS - wire (use before S/N 14063830)                                   | 1     |
| 1    | C 27527  | HARNESS - wire (use S/N 14063830 and after)                                | 1     |
| 2    | C 24815  | HARNESS - wire                                                             | 1     |
| 3    | C 24809  | CABLE - solenoid to starter (black)(use before S/N 14063830)               | 1     |
| 3    | C 29410  | CABLE - solenoid to starter (black)(use S/N 14063830 and after)            | 1     |
| 4    | C 27521  | CABLE - solenoid to battery positive (red)(use S/N 14063830 and after)     | 1     |
| 4    | C 14565  | CABLE - solenoid to battery positive (red)(use before S/N 14063830)        | 1     |
| 5    | C 24814  | CABLE - battery negative to ground (black)                                 | 1     |
| 6    | C 24813  | CONNECTOR - stator                                                         | 1     |
| 7    | C 25486  | CONNECTOR - rectifier                                                      | 1     |
| 8    | C 14537  | CONNECTOR - lights                                                         | 1     |
| 9    | C 29413  | AMMETER - 30 amperes, 12v                                                  | 1     |
| 10   | C 27509  | RECTIFIER - voltage, 12v                                                   | 1     |
| 11   | C 28304  | HOUR METER                                                                 | 1     |
| 12   | C 28979  | SWITCH - oil pressure                                                      | 1     |
| 13   | C 27970  | BATTERY - 12v                                                              | 1     |
| 14   | C 18113  | CAP - battery (screw type)                                                 | 6     |
| 14   | C 29074  | CAP - battery (push type)                                                  | 6     |
| 15   | C 30268  | SWITCH - ignition (includes key and hardware)                              | 1     |
| 16   | C 27751  | KEY - ignition                                                             | 1     |
| 17   | C 26525  | SOLENOID - start, 12v (use before S/N 14063830)                            | 1     |
| 17   | C 27523  | SOLENOID - start, 12v (use S/N 14063830 and after) shown                   | 1     |
| 18   | C 22571  | HEADLIGHT ASSEMBLY - 12v (repairs page 75)                                 | 2     |
| 19   | C 29733  | STARTER - (repairs page 17)                                                | 1     |
| 20   | C 24956  | STATOR                                                                     | 1     |
| 21   | C 22765  | SWITCH - neutral start (1 only on 648BH)                                   | 2     |
| 22   | C 29752  | COIL - ignition, 12v                                                       | 1     |
| 23   | C 29990  | BREAKER CONTACT ASSEMBLY - ignition (repairs page 19)                      | 1     |
| 24   | C 25845  | SPARK PLUG - (includes gasket)                                             | 2     |
| 25   | C 28673  | GASKET - spark plug                                                        | 1     |
| 26   | C 29993  | CABLE - spark plug                                                         | 2     |
| 27   | C 24683  | WIRE - solenoid to switch (648)(use before S/N 14063830)                   | 1     |
| 27   | C 24817  | WIRE - solenoid to switch (648BH)(use before S/N 14063830)                 | 1     |
| 27   | C 27538  | WIRE - solenoid to switch (648)(use S/N 14063830 and after)                | 1     |
| 27   | C 27539  | WIRE - solenoid to switch (648BH)(use S/N 14063830 and after)              | 1     |
| 28   | 223- 30  | FUSE - 30 amperes (included in wire harness)                               | 1     |
| 29   | C 29992  | WIRE - breaker contacts to coil negative                                   | 1     |
| 30   | C 25338  | CONNECTOR - stator                                                         | 1     |
| 31   | C 23327  | WIRE - switch to switch (648 only)                                         | 1     |
| 32   | C 29412  | WIRE - ground                                                              | 1     |
| 33   | NSS      | LIGHT - oil pressure (includes wires and connector)(use C30003 and C29411) | 1     |
|      | C 28216  | BULB - oil pressure                                                        | 1     |
| 34   | C 29411  | WIRE - switch to hour meter                                                | 1     |
| 35   | C 23327  | WIRE - connector to switch                                                 | 1     |
| 36   | C 28994  | CONNECTOR                                                                  | 1     |
| 37   | C 26167  | WIRE - ground                                                              | 1     |
| 38   | C 25244  | WIRE - ground                                                              | 1     |
|      | C 19521  | CLIP - headlight wire                                                      | 1     |
| 39   | C 29035  | HOLDER - fuse                                                              | 1     |
| 40   | C 27549  | CONNECTOR - solenoid                                                       | 1     |



## ELECTRICAL SYSTEM HARDWARE

| REF. | PART NO.  | DESCRIPTION                                     | REQ'D |
|------|-----------|-------------------------------------------------|-------|
| 1    | C 23330   | NUT - switch mounting                           | 1     |
| 2    | C 23012   | LOCK WASHER - internal tooth                    | 1     |
| 3    | 131- 629  | NUT - speed type "U"                            | 4     |
| 4    | 187- 1047 | SCREW - No. 8 - 18 x 1/2" round head Phillips   | 4     |
|      | C 22571   | HEADLIGHT ASSEMBLY                              | 2     |
| 5    | NSS       | RECEPTACLE - headlight (use C22571 assembly)    | 1     |
| 6    | C 28932   | BULB - headlight                                | 1     |
| 7    | C 14304   | GASKET - headlight                              | 2     |
| 8    | C 22573   | LENS - headlight                                | 1     |
| 9    | C 24069   | COVER - terminal                                | 1     |
| 10   | 192- 19   | LOCK WASHER - 1/4"                              | 4     |
| 11   | 129- 101  | NUT - 1/4" - 20 hex                             | UAR   |
| 12   | 182- 522  | SCREW - No. 6 - 32 x 1/2" pan head, Phillips    | 2     |
| 13   | 192- 15   | LOCK WASHER - No. 6                             | 2     |
| 14   | 129- 15   | NUT - No. 6 - 32 hex                            | 2     |
| 15   | 129- 37   | NUT - No. 10 N.F. hex                           | 8     |
| 16   | 192- 18   | LOCK WASHER - No. 10                            | 4     |
| 17   | 111- 202  | BOLT 5/16" - 18 x 3/4" round head, square neck  | 1     |
| 18   | 111- 108  | BOLT - 1/4" - 20 x 3/4" round head, square neck | 1     |
| 19   | 129- 102  | NUT - 5/16" - 18 hex                            | 1     |
| 20   | 113- 17   | BOLT - 1/4" - 20 x 1-1/4" hex                   | 1     |
| 21   | 193- 57   | LOCK WASHER - external tooth                    | 1     |
| 22   | 113- 3    | BOLT - 1/4" - 20 x 3/4" hex                     | UAR   |
| 23   | 113- 5    | BOLT - 1/4" - 20 x 1-1/2" hex                   | 1     |
| 25   | 182- 147  | SCREW - No. 10 - 32 x 3/4"                      | 2     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## DECALS (English)

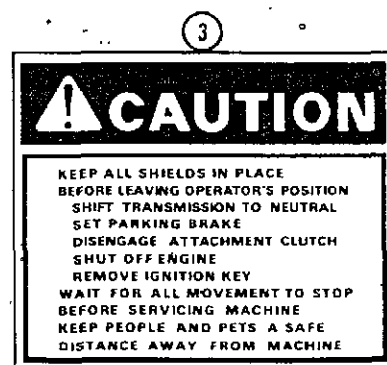
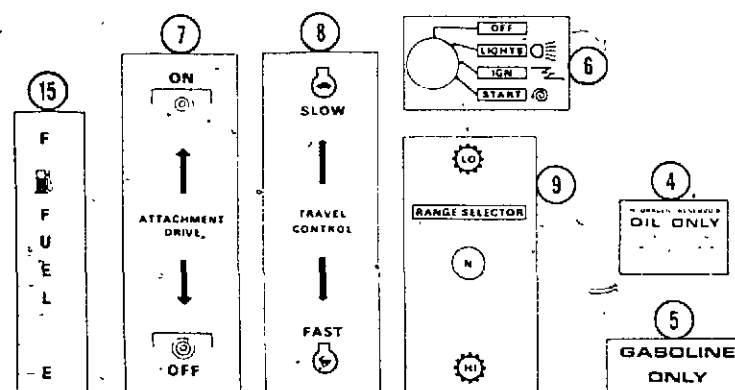
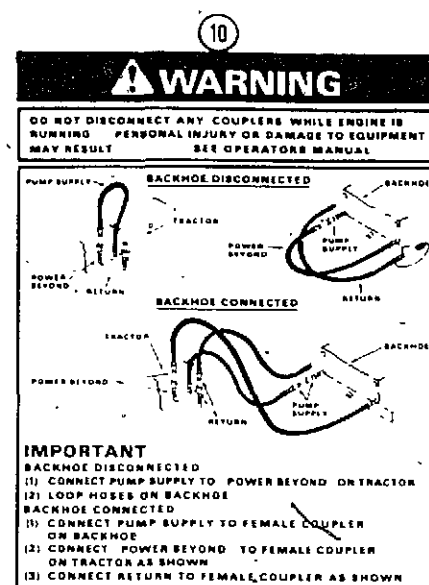
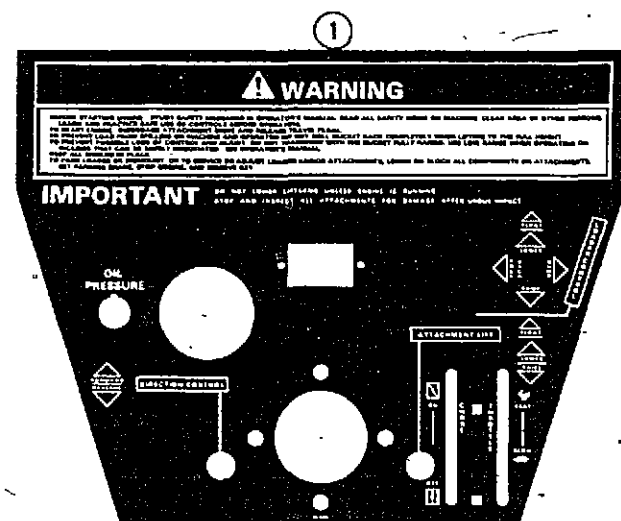
(Use before S/N 14076862)

| REF. | PART NO.  | DESCRIPTION                                                                        | REQ'D |
|------|-----------|------------------------------------------------------------------------------------|-------|
| 1    | 321- 6403 | DECAL - instrument panel (use before S/N 14076821)                                 | 1     |
| 1    | C 27998   | DECAL - instrument panel (use S/N 14076821 and after)                              | 1     |
| 2    | C 26912   | DECAL - "648" (use before S/N 14063844)                                            | 2     |
| 3    | 321- 3256 | DECAL - "Caution"                                                                  | 1     |
| 4    | C 14539   | DECAL - oil, hydraulic reservoir                                                   | 1     |
| 5    | C 29031   | DECAL - gasoline                                                                   | 1     |
| 6    | 321- 2147 | DECAL - ignition switch                                                            | 1     |
| 7    | 321- 2111 | DECAL - attachment drive                                                           | 1     |
| 8    | 321- 2338 | DECAL - travel control                                                             | 1     |
| 9    | C 27474   | DECAL - range selector                                                             | 1     |
| 10   | C 26861   | DECAL - "Warning" hose routing                                                     | 2     |
| 10   | 321- 6254 | DECAL - "Warning", coupling procedure (shown)                                      | 2     |
| 11   | 321- 5040 | MEDALLION - "Case"                                                                 | 1     |
| 12   | C 26910   | DECAL - "Case" tread L.H. (shown)(use before S/N 14063844)                         | 1     |
| 12   | C 26911   | DECAL - "Case" tread R.H. (use before S/N 14063844)                                | 1     |
| 13   | 321- 5115 | DECAL - "Case" tread R.H.* (shown) use on backhoe dipper (use before S/N 14063844) | 1     |
| 13   | 321- 5116 | DECAL - "Case" tread L.H.* use on backhoe dipper (use before S/N 14063844)         | 1     |
| 14   | C 26657   | DECAL - air cleaner                                                                | 1     |
| 15   | C 27189   | DECAL - "HYLOAD" (use before S/N 14063844)                                         | 1     |
| 16   | C 27190   | DECAL - "HYDRIV" (use before S/N 14063844)                                         | 1     |
| 17   | C 27607   | DECAL - loader arm R.H. front (use S/N 14063844 and after)                         | 1     |
| 17   | C 27608   | DECAL - loader arm L.H. front (shown)(use S/N 14063844 and after)                  | 1     |
| 18   | C 27609   | DECAL - loader arm R.H. rear (use S/N 14063844 and after)                          | 1     |
| 18   | C 27610   | DECAL - loader arm L.H. rear (shown)(use S/N 14063844 and after)                   | 1     |
| 19   | C 26700   | DECAL - fuel (use S/N 14076853 and after)                                          | 1     |

## DECALS (French and English)

|    |           |                                      |   |
|----|-----------|--------------------------------------|---|
| 1  | 321- 6463 | DECAL - instrument panel             | 1 |
| 3  | 321- 4733 | DECAL - "Caution"                    | 1 |
| 4  | 321- 4743 | DECAL - oil, hydraulic reservoir     | 1 |
| 5  | 321- 4728 | DECAL - gasoline                     | 1 |
| 6  | 321- 4692 | DECAL - ignition switch              | 1 |
| 7  | 321- 4729 | DECAL - attachment drive             | 1 |
| 8  | 321- 4732 | DECAL - travel control               | 1 |
| 9  | 321- 4693 | DECAL - range selector               | 1 |
| 10 | 321- 4749 | DECAL - "Warning" coupling procedure | 1 |
|    | 321- 4787 | DECAL - backhoe controls             | 1 |

\*R.H. and L.H. on the backhoe are determined by your normal operating position of the backhoe.



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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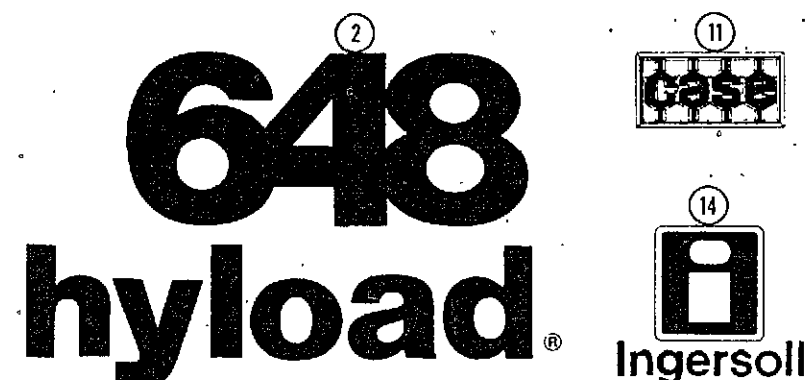
## DECALS (English)

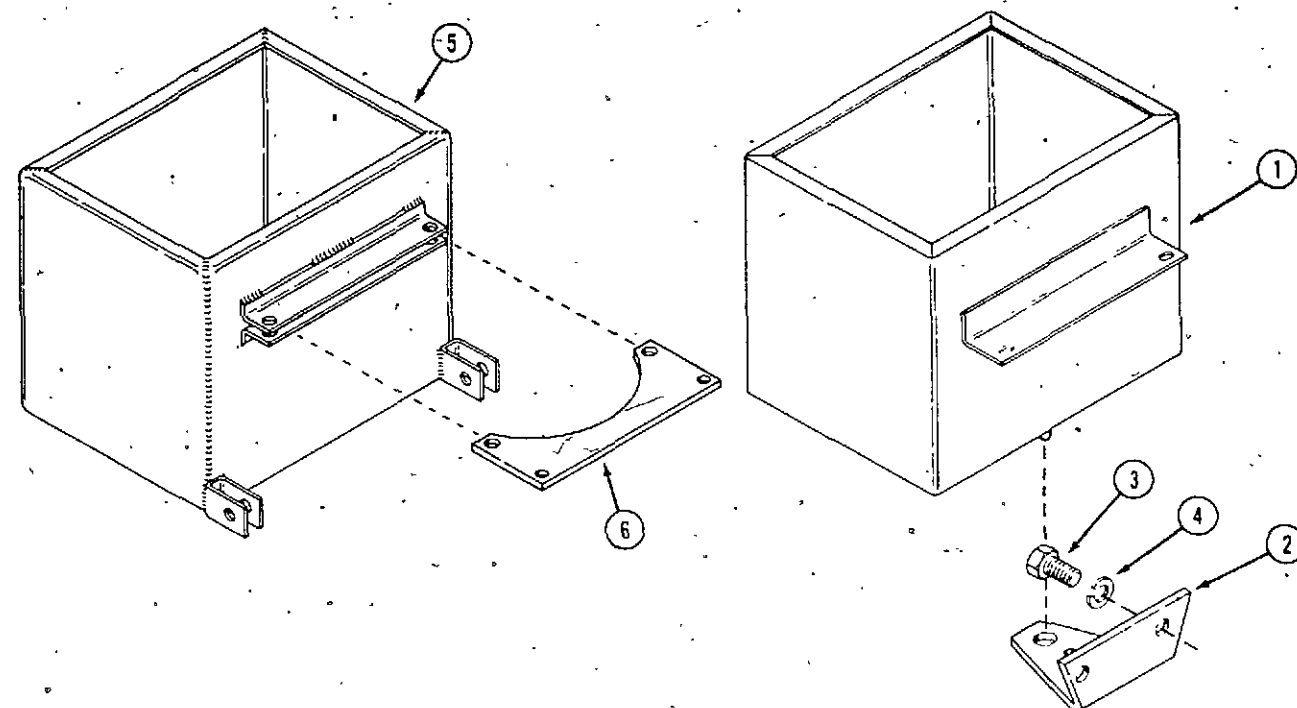
(Use S/N 14076862 and after)

| REF. | PART NO.  | DESCRIPTION                                   | REQ'D |
|------|-----------|-----------------------------------------------|-------|
| 1    | C 27998   | DECAL - instrument panel                      | 1     |
| 2    | C 29695   | DECAL - "648 hyload" loader arms              | 2     |
| 3    | 321- 3256 | DECAL - "Caution"                             | 1     |
| 4    | C 14539   | DECAL - oil, hydraulic reservoir              | 1     |
| 5    | C 29031   | DECAL - gasoline                              | 1     |
| 6    | 321- 2147 | DECAL - ignition switch                       | 1     |
| 7    | 321- 2111 | DECAL - attachment drive                      | 1     |
| 8    | 321- 2338 | DECAL - travel control                        | 1     |
| 9    | C 27474   | DECAL - range selector                        | 1     |
| 10   | C 26861   | DECAL - "Warning" hose routing                | 2     |
| 10   | 321- 6254 | DECAL - "Warning", coupling procedure (shown) | 2     |
| 11   | 321- 5040 | MEDALLION - "Case"                            | 1     |
| 12   | C 29694   | DECAL - "INGERSOLL" loader arms               | 2     |
| 13   | C 29696   | DECAL - "INGERSOLL" seat back                 | 1     |
| 14   | C 29918   | DECAL - "INGERSOLL" instrument tower          | 1     |
| 15   | C 26700   | DECAL - fuel                                  | 1     |
| 16   | C 30539   | MEDALLION - "INGERSOLL"                       | 1     |

## DECALS (French and English)

|    |           |                                      |   |
|----|-----------|--------------------------------------|---|
| 1  | 321- 6463 | DECAL - instrument panel             | 1 |
| 3  | 321- 4733 | DECAL - "Caution"                    | 1 |
| 4  | 321- 4743 | DECAL - oil, hydraulic reservoir     | 1 |
| 5  | 321- 4728 | DECAL - gasoline                     | 1 |
| 6  | 321- 4692 | DECAL - ignition switch              | 1 |
| 7  | 321- 4729 | DECAL - attachment drive             | 1 |
| 8  | 321- 4732 | DECAL - travel control               | 1 |
| 9  | 321- 4693 | DECAL - range selector               | 1 |
| 10 | 321- 4749 | DECAL - "Warning" coupling procedure | 1 |
|    | 321- 4787 | DECAL - backhoe controls             | 1 |





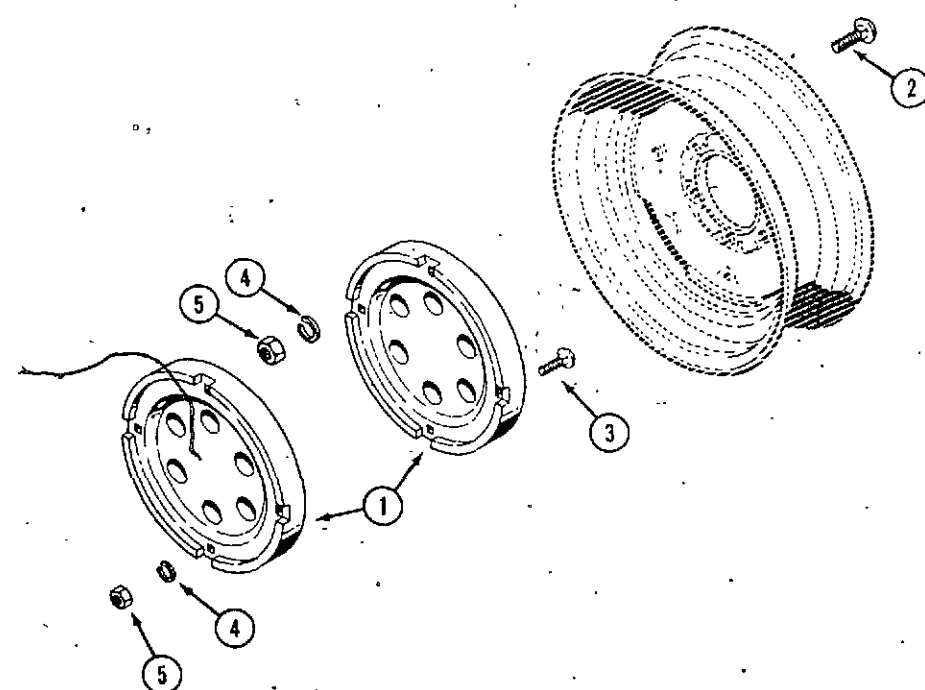
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

## WEIGHT BOX AND DRAW BAR

| REF. | PART NO. | DESCRIPTION                | REQ'D |
|------|----------|----------------------------|-------|
| 1    | C 17641  | WEIGHT BOX - (648)         | 1     |
| 2    | C 13360  | DRAWBAR                    | 1     |
| 3    | 113- 424 | BOLT - 1/2" x 1" NC hex    | 2     |
| 4    | 192- 23  | LOCK WASHER - 1/2"         | 2     |
| 5    | C 23982  | WEIGHT BOX - (648BH)       | 1     |
| 6    | C 23946  | BRACKET - mounting (648BH) | 1     |

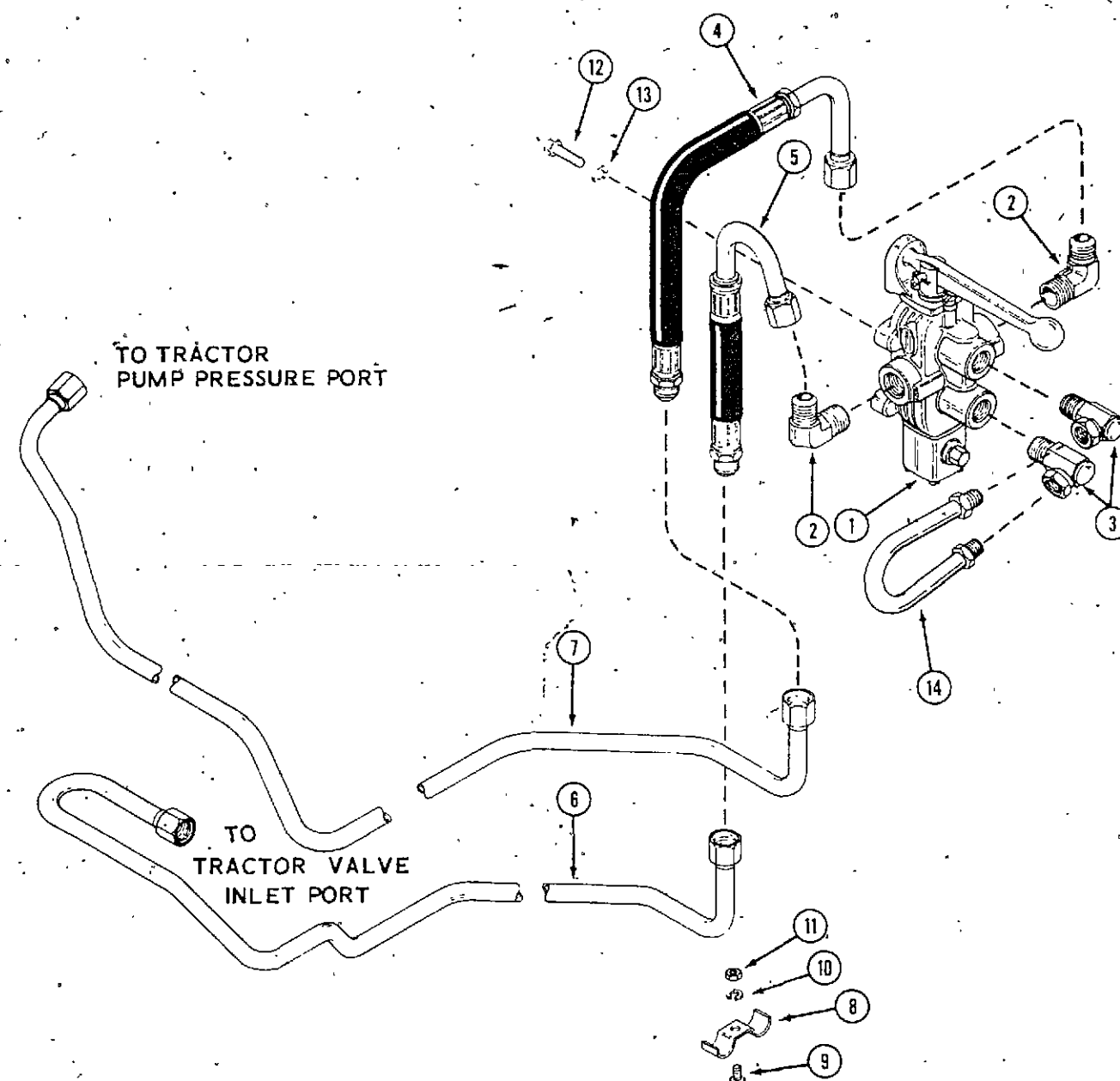
## D10 WHEEL WEIGHTS

|   |          |                                                    |   |
|---|----------|----------------------------------------------------|---|
| 1 | NSS      | WEIGHT - wheel (Order as machinery item)           | 4 |
| 2 | 111- 530 | BOLT - 1/2" x 2-1/2" NC round head, square neck ZP | 4 |
| 3 | 111- 531 | BOLT - 1/2" x 2-3/4" NC round head, square neck ZP | 4 |
| 4 | 92- 8    | LOCK WASHER - 1/2"                                 | 8 |
| 5 | 129- 105 | NUT - 1/2" NC hex                                  | 8 |

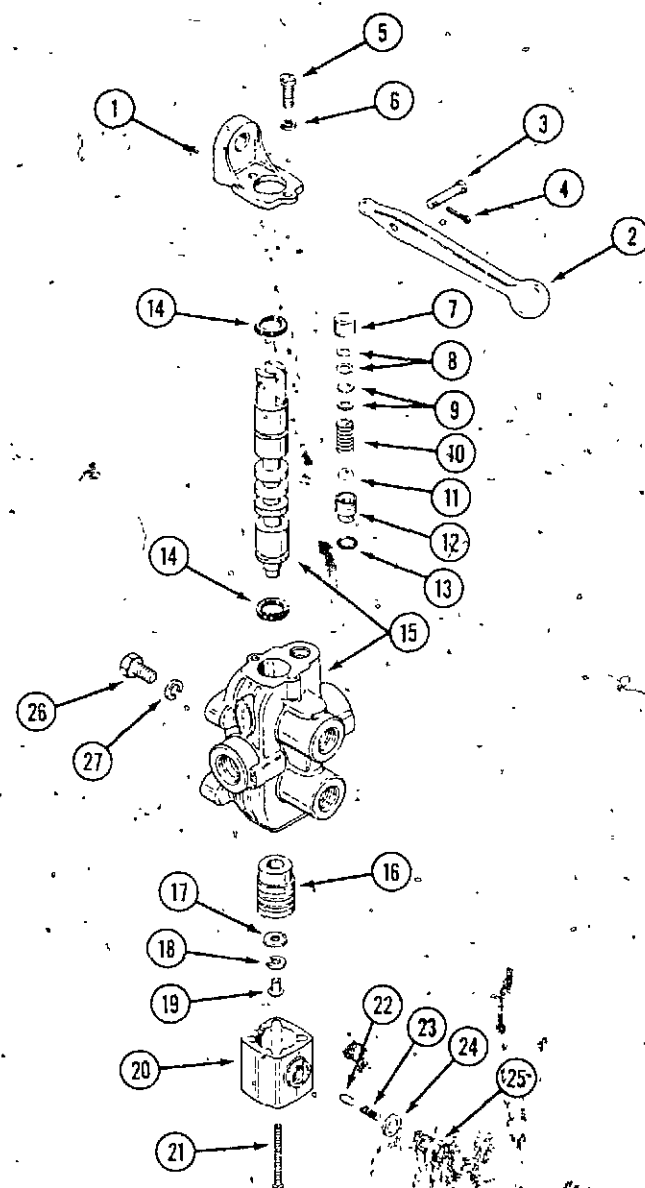


## MODEL LT16 HYDRAULIC PTO KIT

ILLUSTRATED AS VIEWED FROM  
LEFT REAR OF TRACTOR

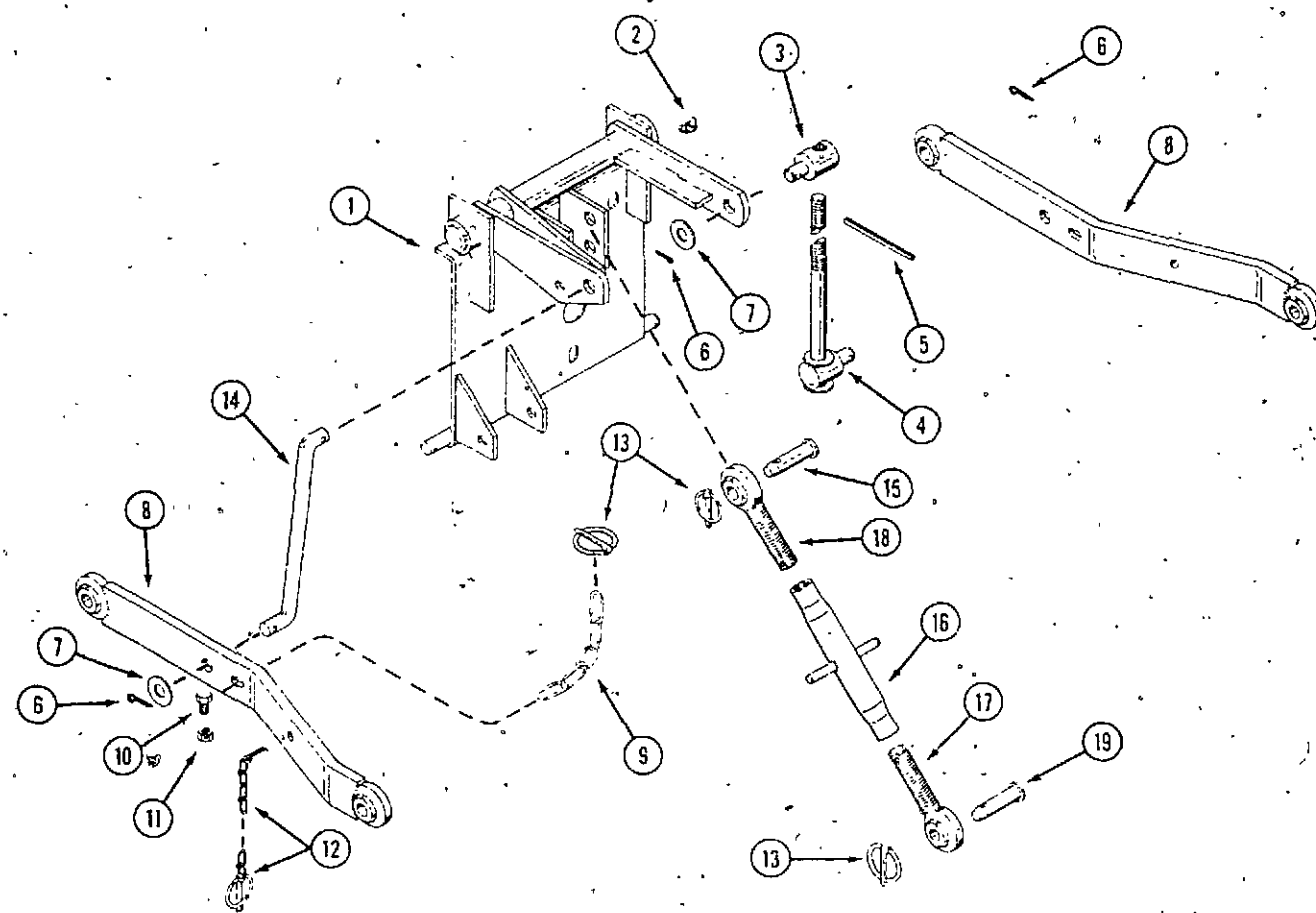


| REF. | PART NO. | DESCRIPTION                                                        | REQ'D |
|------|----------|--------------------------------------------------------------------|-------|
| 1    | C 30044  | VALVE - hydraulic, PTO (repairs page 85) (does not include handle) | 1     |
| 2    | 218- 494 | FITTING - elbow, 90°                                               | 2     |
| 3    | 218- 927 | FITTING - swivel, 90°                                              | 2     |
| 4    | C 18287  | HOSE, valve inlet                                                  | 1     |
| 5    | C 30051  | HOSE, valve outlet                                                 | 1     |
| 6    | C 18285  | TUBE - PTO valve to tractor valve                                  | 1     |
| 7    | C 26004  | TUBE - pump to PTO valve                                           | 1     |
| 8    | C 15389  | CLAMP - tube support                                               | 1     |
| 9    | 113- 3   | BOLT - 1/4" x 3/4" NC hex                                          | 1     |
| 10   | 192- 19  | LOCK WASHER - 1/4"                                                 | 1     |
| 11   | 129- 101 | NUT - 1/4" NC hex                                                  | 1     |
| 12   | 113- 206 | BOLT - 3/8" x 3/4" NC hex                                          | 4     |
| 13   | 192- 21  | LOCK WASHER - 3/8"                                                 | 4     |
| 14   | C 22829  | TUBE - hydraulic loop                                              | 1     |



## LT16 HYDRAULIC PTO VALVE

| REF. | PART NO. | DESCRIPTION                                    | REQ'D |
|------|----------|------------------------------------------------|-------|
| 1    | C 11888  | BRACKET - handle                               | 1     |
| 2    | C 11889  | HANDLE - valve                                 | 1     |
|      | C 30044  | VALVE - hydraulic PTO                          | 1     |
| 3    | 141- 62  | PIN - clevis                                   | 1     |
| 4    | 132- 5   | PIN - cotter 1/16" x 1/2"                      | 1     |
| 5    | 182- 527 | SCREW                                          | 2     |
| 6    | 192- 19  | LOCK WASHER - 1/4"                             | 2     |
| 7    | 221- 842 | PLUG - relief 3/8" NPT                         | 1     |
| 8    | C 28700  | WASHER - relief, .010"                         | UAR   |
| 9    | C 28698  | WASHER - relief, .020"                         | UAR   |
| 10   | C 28716  | SPRING - relief                                | 1     |
| 11   | 211- 11  | BALL - relief 3/8"                             | 1     |
| 12   | C 18417  | SEAT - relief                                  | 1     |
| 13   | C 28696  | SEAL - "O" ring, relief seat                   | 1     |
| 14   | C 11891  | SEAL - "U" cup                                 | 2     |
| 15   | NSS      | BODY AND SPOOL ASSEMBLY - (order C30044 valve) | 1     |
| 16   | C 11895  | ADAPTER - spool                                | 1     |
| 17   | 195- 102 | WASHER - detent                                | 1     |
| 18   | 192- 19  | LOCK WASHER - 1/4"                             | 1     |
| 19   | 75- 48   | SCREW - 1/4" x 1/2" rd. hd. machine            | 1     |
| 20   | C 11893  | BONNET - detent                                | 1     |
| 21   | 169- 88  | SCREW - bonnet #8 x 2-1/4" fillister head      | 4     |
| 22   | C 11901  | PIN - detent                                   | 1     |
| 23   | C 11892  | SPRING - detent                                | 1     |
| 24   | C 11886  | WASHER - detent cap                            | 1     |
| 25   | C 11887  | CAP - detent                                   | 1     |
| 26   | 113- 206 | BOLT - 3/8" x 3/4" NC hex                      | 4     |
| 27   | 192- 21  | LOCK WASHER - 3/8"                             | 4     |



## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

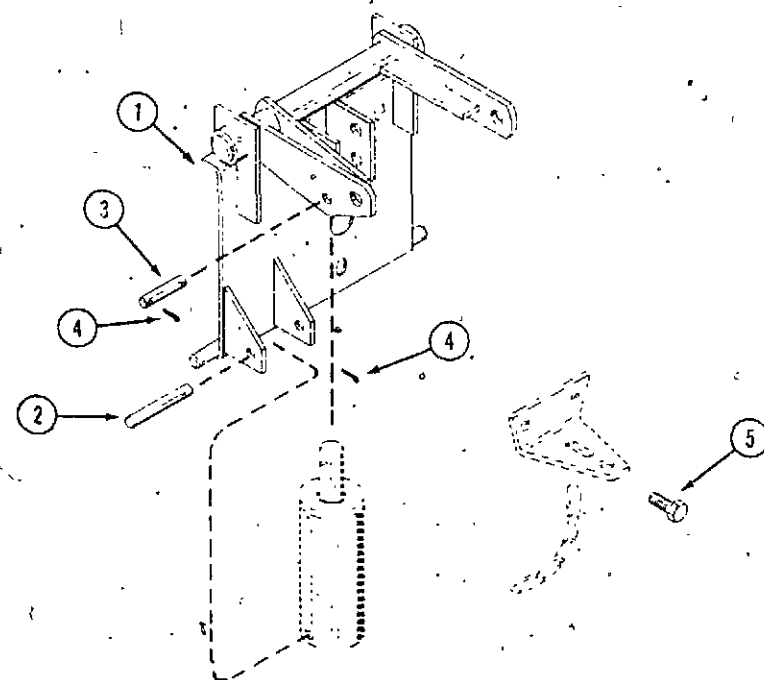
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### LT26 THREE POINT HITCH (FRAME, LIFT RODS AND ARMS)

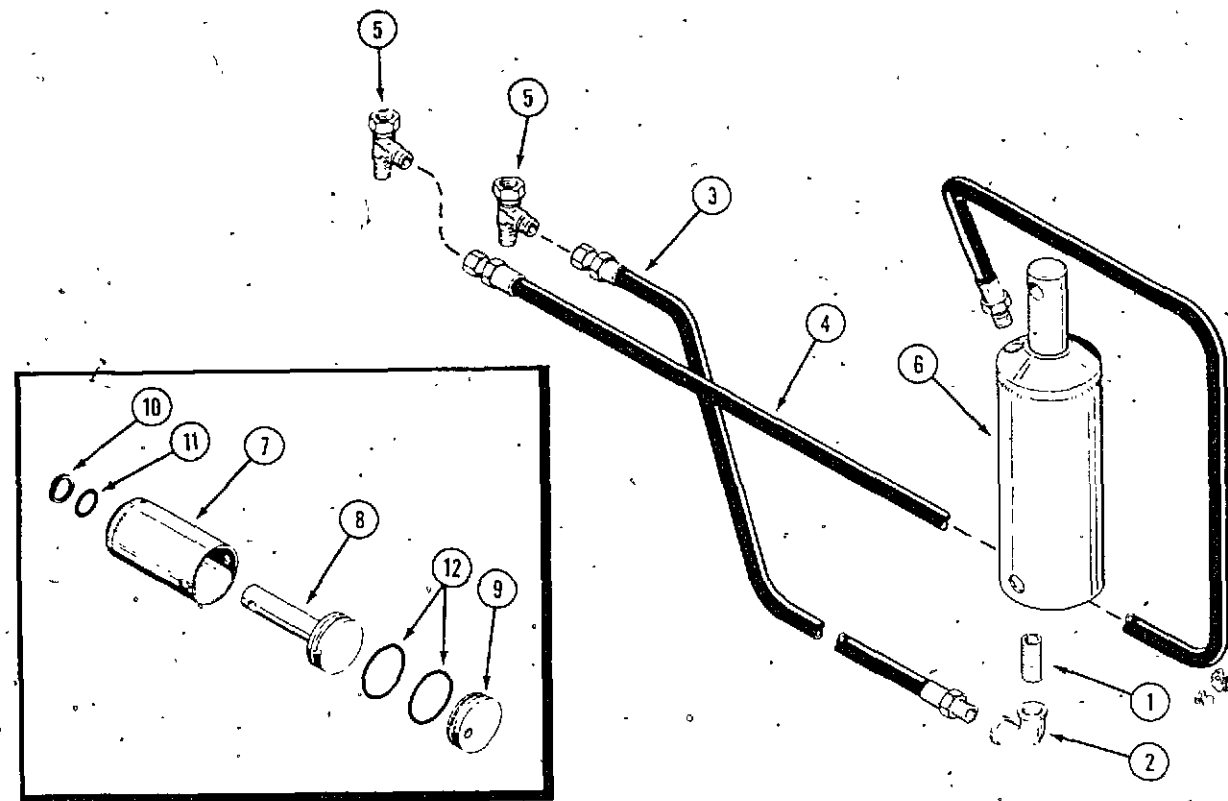
| REF. | PART NO. | DESCRIPTION                             | REQ'D |
|------|----------|-----------------------------------------|-------|
| 1    | C 26200  | HITCH PLATE ASSEMBLY                    | 1     |
| 2    | 219- 405 | FITTING - lube                          | 2     |
| 3    | C 14722  | NUT - lift rod                          | 1     |
| 4    | C 14724  | ROD ASSEMBLY - R.H. lift                | 1     |
| 5    | 138- 308 | PIN - roll 1/4" x 3"                    | 1     |
| 6    | 132- 91  | PIN - cotter 3/16" x 1"                 | 6     |
| 7    | 195- 541 | WASHER - plain 5/8"                     | 4     |
| 8    | C 14715  | ARM - lift                              | 2     |
| 9    | C 14991  | CHAIN - stay 19 links                   | 1     |
| 10   | 113- 118 | BOLT - 5/16" x 5/8" NC hex, zinc plated | 2     |
| 11   | 131- 176 | NUT - lock 5/16" NC hex                 | 2     |
| 12   | C 28985  | PIN - klik                              | 2     |
| 13   | C 28222  | PIN - klik                              | 3     |
| 14   | C 14725  | ROD - lift L.H.                         | 1     |
| 15   | C 16128  | PIN - clevis                            | 1     |
|      | C 14712  | LINK ASSEMBLY                           | 1     |
| 16   | C 14703  | CENTER TUBE ASSEMBLY                    | 1     |
| 17   | C 14709  | BALL END ASSEMBLY R.H. THREAD           | 1     |
| 18   | C 14710  | BALL END ASSEMBLY L.H. THREAD           | 1     |
| 19   | C 16128  | PIN - clevis 5/8" x 3"                  | 1     |

### LT26 THREE POINT HITCH (CYLINDER AND DRAWBAR MOUNTING)

|   |          |                                          |   |
|---|----------|------------------------------------------|---|
| 1 | C 26200  | HITCH PLATE ASSEMBLY                     | 1 |
| 2 | C 26188  | PIN - lower cylinder mounting            | 1 |
| 3 | C 14976  | PIN - upper cylinder mounting            | 1 |
| 4 | 132- 310 | PIN - cotter 1/8" x 1"                   | 3 |
| 5 | 113- 417 | BOLT - 1/2" x 1-1/4" NC hex, zinc plated | 4 |
| 6 | 192- 23  | LOCK WASHER - 1/2"                       | 4 |



### MODEL LT26 THREE POINT HITCH (HYDRAULIC CONNECTIONS AND COMPONENTS)

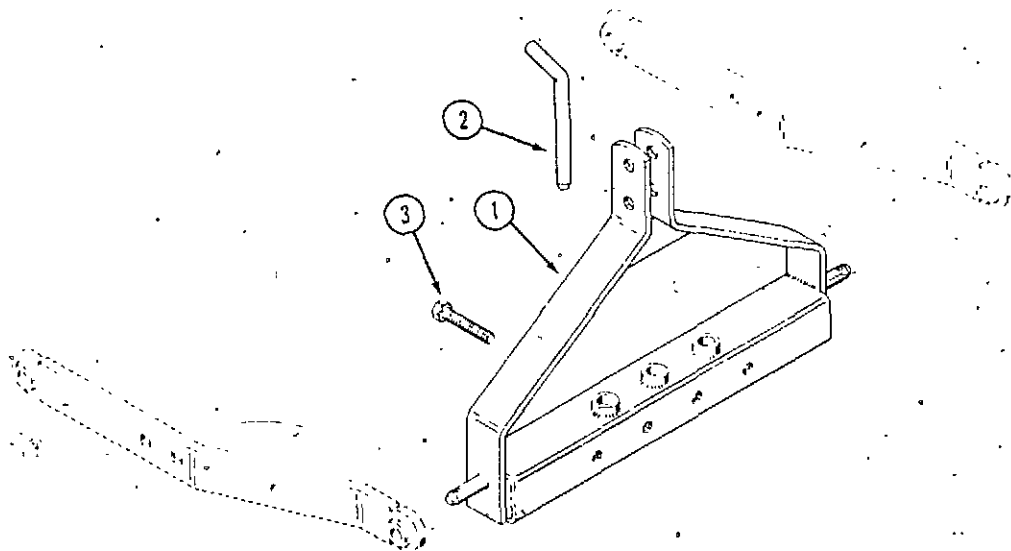


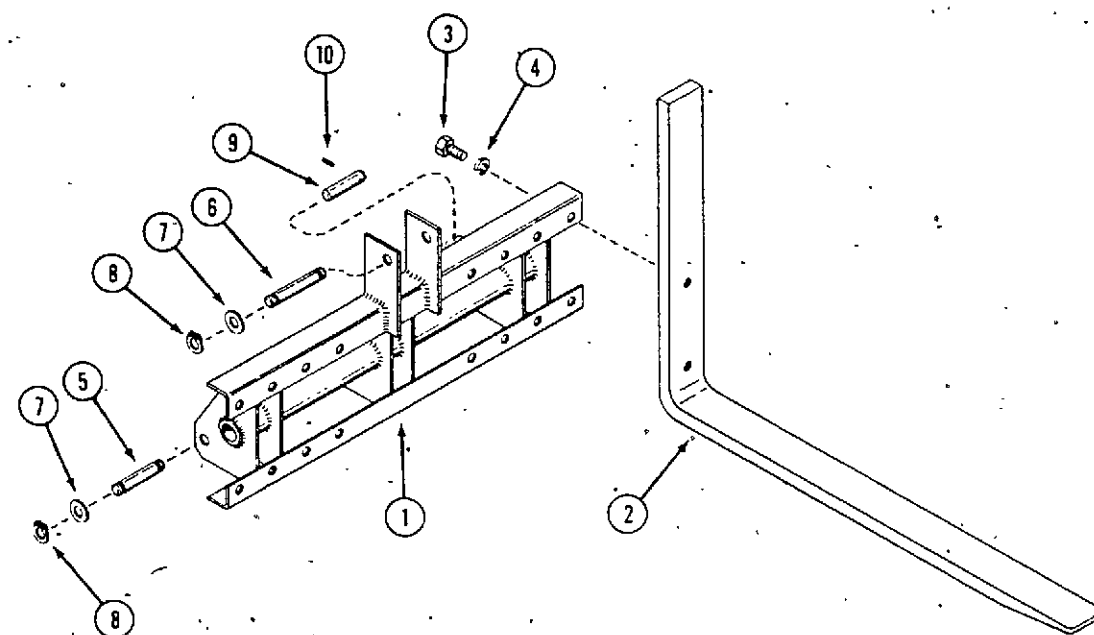
| REF. | PART NO.  | DESCRIPTION                      | REQ'D |
|------|-----------|----------------------------------|-------|
| 1    | 221- 1139 | NIPPLE - 1/4" x 3"               | 1     |
| 2    | 221- 1375 | ELBOW - 90°                      | 1     |
| 3    | C 17188   | HOSE - hydraulic, short          | 1     |
| 4    | C 17189   | HOSE - hydraulic, long           | 1     |
| 5    | 218- 5479 | FITTING - tee swivel             | 2     |
| 6    | NSS       | CYLINDER ASSEMBLY - (use C26494) | 1     |
| 7    | C 19476*  | BODY - cylinder                  | 1     |
| 8    | C 19469*  | ROD AND PISTON ASSEMBLY          | 1     |
| 9    | NSS       | FOOT - cylinder (use C26494)     | 1     |
|      | C 30054   | KIT - seal                       | 1     |
| 10   | C 14970*  | SEAL - wiper                     | 1     |
| 11   | C 28487*  | "O" RING                         | 1     |
| 12   | C 28697*  | "O" RING                         | 2     |

\*for original cylinder

### MODEL F27 HITCH ADAPTER

|   |          |                                   |   |
|---|----------|-----------------------------------|---|
| 1 | C 14872  | BRACKET - hitch adapter           | 1 |
| 2 | C 14568  | PIN - drawbar                     | 1 |
| 3 | 113- 425 | BOLT - 1/2" x 3" hex, zinc plated | 4 |





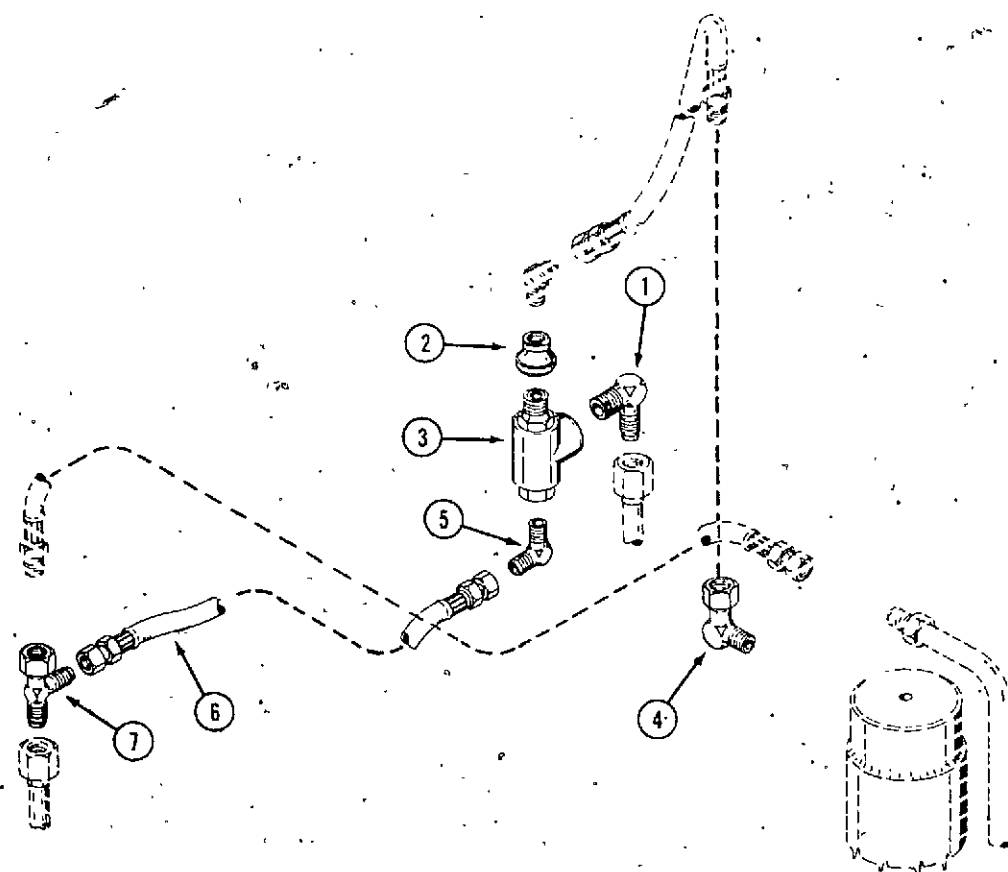
## MODEL 648 AND 648BH COMPACT WHEEL LOADERS

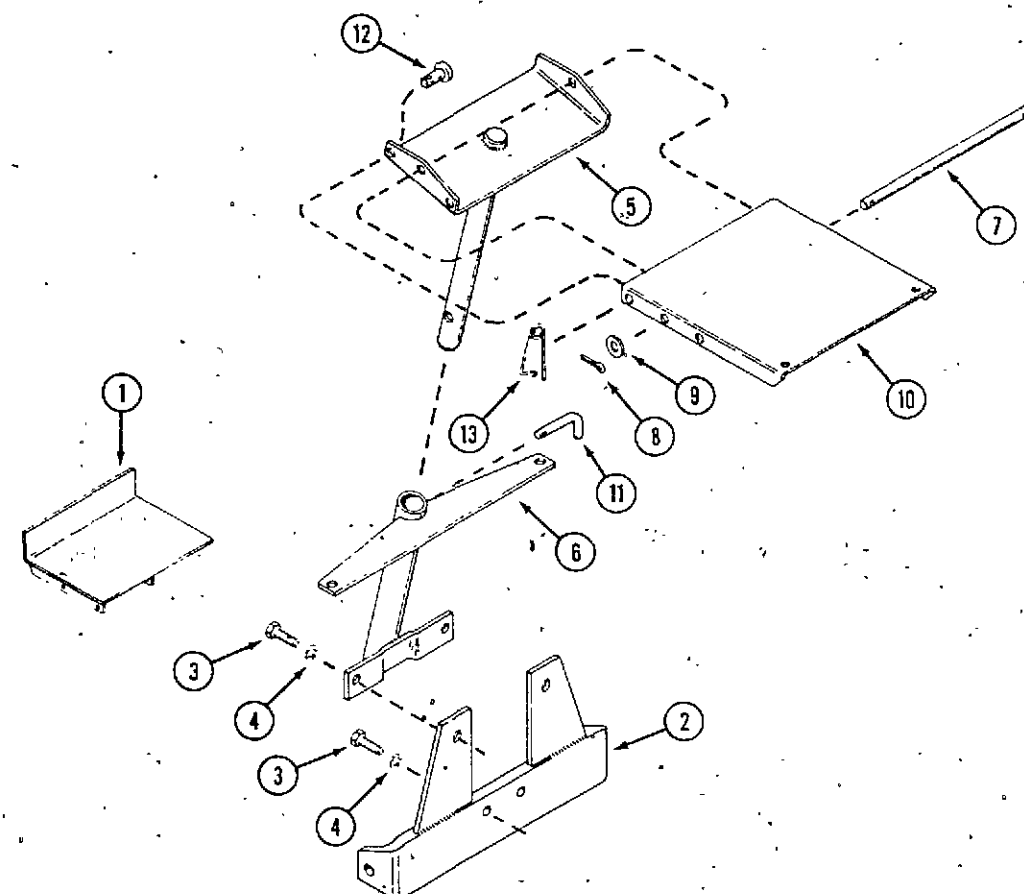
## LL20 FORK LIFT

| REF. | PART NO.  | DESCRIPTION                 | REQ'D |
|------|-----------|-----------------------------|-------|
| 1    | C 18637   | FRAME ASSEMBLY - fork lift  | 1     |
| 2    | C 18641   | TINE - fork lift            | 2     |
| 3    | 113- 606  | BOLT - 5/8" x 1-1/4" NC hex | 4     |
| 4    | 192- 25   | LOCK WASHER - 5/8"          | 4     |
| 5    | C 17334   | PIN - loader, 3-5/16"       | 2     |
| 6    | C 17336   | PIN - loader, 4-3/4"        | 1     |
| 7    | 195- 545  | WASHER - 3/4" plain ZP      | 6     |
| 8    | C 28232   | RING - retaining            | 6     |
| 9    | C 21963   | PIN - cylinder lift         | 1     |
| 10   | 138- 2005 | PIN - spirol 1/4" x 1"      | 1     |

LL20 FORK LIFT CHECK VALVE HYDRAULIC COMPONENTS  
(LL21 VALVE KIT)

|   |           |                                               |   |
|---|-----------|-----------------------------------------------|---|
| 1 | 218- 1054 | FITTING - elbow 90° 3/8" NPT x 9/16" - 18 JIC | 1 |
| 2 | 221- 1348 | CONNECTOR - reduction 1/4" x 1/2" NPT         | 1 |
| 3 | C 28274   | VALVE - check                                 | 1 |
| 4 | 218- 993  | ADAPTER - swivel 90°                          | 1 |
| 5 | 218- 483  | FITTING - elbow 90° 1/4" NPT x 9/16" - 18 JIC | 1 |
| 6 | C 25168   | HOSE - hydraulic                              | 1 |
| 7 | 218- 5222 | FITTING - tee 9/16" - 18                      | 1 |

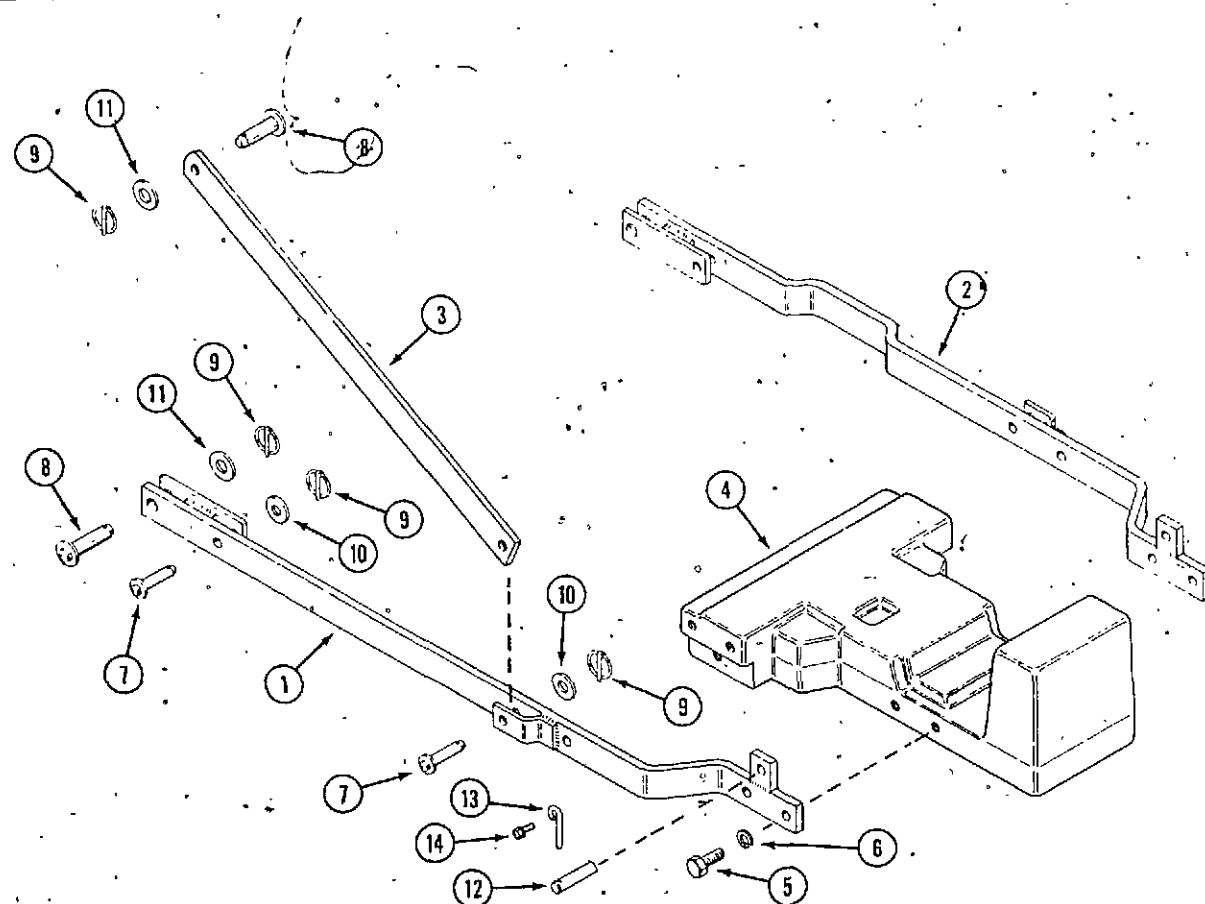




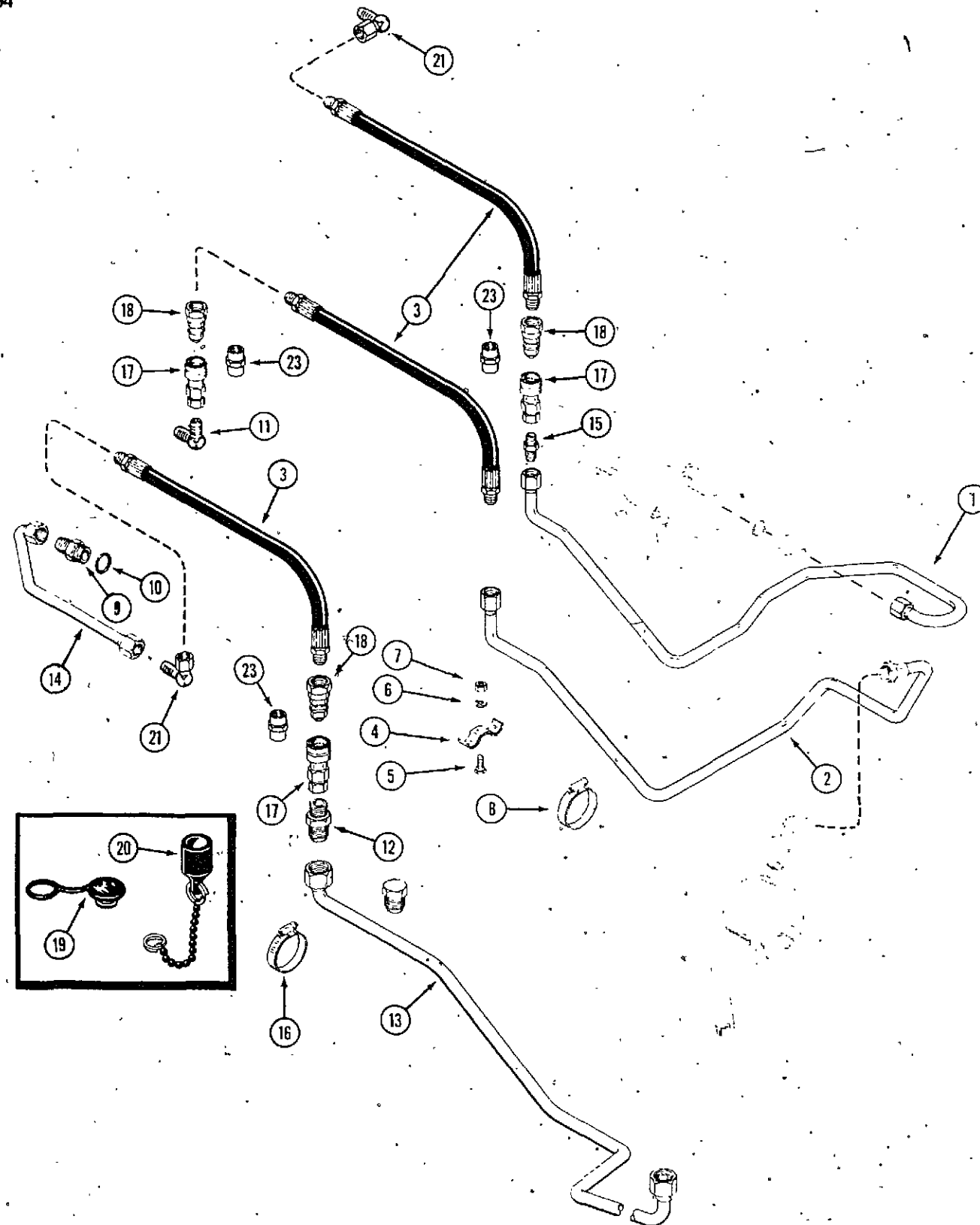
| REF. | PART NO. | DESCRIPTION                   | REQ'D |
|------|----------|-------------------------------|-------|
| 1    | C 24520  | PAD - foot rest, L.H.         | 1     |
| 1    | C 24519  | PAD - foot rest, R.H.         | 1     |
| 2    | C 23684  | PLATE - mounting, rear        | 1     |
| 3    | 113- 410 | BOLT - 1/2" x 1-1/2" hex      | 4     |
| 4    | 192- 213 | LOCK WASHER - 1/2"            | 4     |
| 5    | C 23736  | POST ASSEMBLY - seat          | 1     |
| 6    | C 23733  | TUBE ASSEMBLY - support, post | 1     |
| 7    | C 23737  | PIN - pivot                   | 1     |
| 8    | 132- 335 | PIN - cotter - 1/8" x 1-1/4"  | 2     |
| 9    | 195- 545 | WASHER                        | 2     |
| 10   | C 23738  | PLATE - pivot, seat           | 1     |
| 11   | C 24730  | PIN - adjust                  | 1     |
| 12   | 141- 56  | PIN - clevis 1/2" x 1-3/8"    | 1     |
| 13   | C 10898  | PIN - safety                  | 1     |

### BACKHOE MOUNTING COMPONENTS 648BH

|    |           |                                      |     |
|----|-----------|--------------------------------------|-----|
| 1  | C 25958   | ARM - mounting, lower R.H.           | 1   |
| 2  | C 25960   | ARM - mounting, lower L.H.           | 1   |
| 3  | C 26334   | ARM - mounting, side                 | 2   |
| 4  | C 25961   | WEIGHT - counter                     | 1   |
| 5  | 113- 713  | BOLT - 3/4" x 1-3/4"                 | 6   |
| 6  | 192- 27   | LOCK WASHER - 3/4"                   | 6   |
| 7  | C 26480   | PIN - 3/4"                           | 6   |
| 8  | C 26478   | PIN - 1"                             | 4   |
| 9  | C 28222   | PIN - klick                          | UAR |
| 10 | 195- 545  | WASHER - 3/4"                        | 6   |
| 11 | 195- 553  | WASHER - 1"                          | 4   |
| 12 | C 21963   | PIN - mounting                       | 2   |
| 13 | C 25965   | PIN - retainer                       | 2   |
| 14 | 187- 1046 | SCREW - 3/8" - 16 x 5/8" washer head | 2   |



## BACKHOE HYDRAULIC CONNECTING LINES (648BH)



| REF. | PART NO.  | DESCRIPTION                                                 | REQ'D |
|------|-----------|-------------------------------------------------------------|-------|
| 1    | C 18285   | TUBE - valve to hose                                        | 1     |
| 2    | C 26004   | TUBE - pump to hose                                         | 1     |
| 3    | C 28278   | HOSE - hydraulic                                            | 3     |
| 4    | C 15389   | CLAMP - tube support                                        | 1     |
| 5    | 113- 3    | BOLT - 1/4" x 3/4" NC, hex                                  | 1     |
| 6    | 192- 19   | LOCK WASHER - 1/4"                                          | 1     |
| 7    | 129- 101  | NUT - 1/4" NC hex                                           | 1     |
| 8    | 214- 254  | CLAMP - hose 1-1/4"                                         | 1     |
| 9    | 218- 5062 | FITTING - straight, hydraulic (includes 218-5007 "O" ring)  | 1     |
| 10   | 218- 5007 | "O" RING                                                    | 1     |
| 11   | 218- 485  | FITTING - 90° elbow, hydraulic                              | 1     |
| 12   | 218- 458  | FITTING - straight, hydraulic                               | 1     |
| 13   | C 26023   | TUBE - return, backhoe to tee                               | 1     |
| 14   | C 23887   | TUBE - return, on backhoe                                   | 1     |
| 15   | 218- 445  | FITTING - straight, hydraulic                               | 1     |
| 16   | 214- 258  | CLAMP - tube support                                        | 1     |
| 17   | C 23939   | COUPLER - body                                              | 3     |
|      | C 28742   | "O" RING                                                    | 1     |
| 18   | C 28319   | COUPLER - nose piece                                        | 3     |
| 19   | C 28212   | PLUG - protective, coupler body                             | 1     |
| 20   | C 23918   | CAP - protective, coupler, nose piece                       | 1     |
| 21   | 218- 5232 | FITTING - 90° elbow, hydraulic                              | 2     |
| 22   | 218- 777  | PLUG - tube (for return tube with backhoe disconnected)     | 1     |
| 23   | 217- 1103 | COUPLING - 1/2" pipe, high pressure                         | 3     |
|      | 221- 1842 | PLUG - pipe, backhoe valve                                  | 1     |
|      | 218- 5136 | FITTING - 45° elbow, hydraulic (in base of dipper cylinder) | 1     |

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| C10898   | 29       | 29       | C14970   | 89       | 10       |
| C10898   | 93       | 13       | C14976   | 87       | 3        |
| C11529   | 25       | 2        | C14991   | 87       | 9        |
| C11545   | 25       | 3        | C15389   | 83       | 8        |
| C11886   | 85       | 24       | C15389   | 95       | 4        |
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| C11888   | 85       | 1        | C15513   | 27       | 7        |
| C11889   | 85       | 2        | C15557   | 27       | 8        |
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| C11901   | 85       | 22       | C16429   | 31       | 7        |
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| C12713   | 39       | 2        | C16616   | 27       | 1        |
| C12718   | 39       | 36       | C16616   | 27       | 1        |
| C12725   | 39       | 21       | C16714   | 51       | 2        |
| C12824   | 37       | 18       | C16786   | 27       | 13       |
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| C13200   | 51       | 16       | C17322   | 37       | 2        |
| C13241   | 39       | 5        | C17328   | 37       | 5        |
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| C13360   | 81       | 2        | C17334   | 91       | 5        |
| C13385   | 39       | 6        | C17335   | 37       | 11       |
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| C14223   | 39       | 37       | C17435   | 49       | 16       |
| C14304   | 75       | 7        | C17438   | 49       | 10       |
| C14534   | 31       | 12       | C17438   | 51       | 18       |
| C14537   | 73       | 8        | C17439   | 49       | 9        |
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| C14690   | 25       | 5        | C17488   | 31       | 1        |
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| C14728   | 25       | 3        | C17641   | 81       | 1        |
| C14728   | 31       | 15       | C17647   | 29       | 19       |
| C14827   | 55       | 4        | C17653   | 29       | 17       |
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| C22633   | 15       | 16       | C24933   | 9        | 12       |
| C22637   | 39       | 12       | C24934   | 9        | 12       |
| C22638   | 39       | 11       | C24935   | 9        | 12       |
| C22765   | 73       | 21       | C24936   | 9        | 12       |
| C22829   | 83       | 14       | C24938   | 9        | 15       |