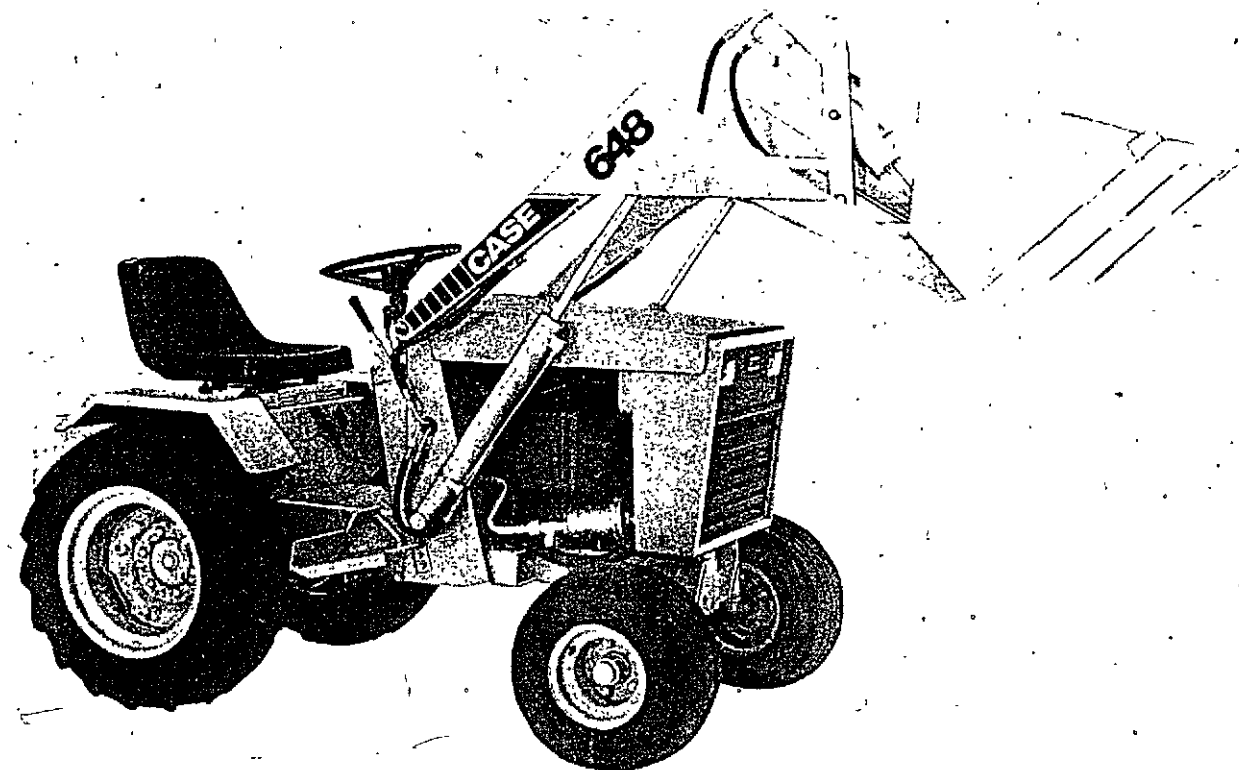
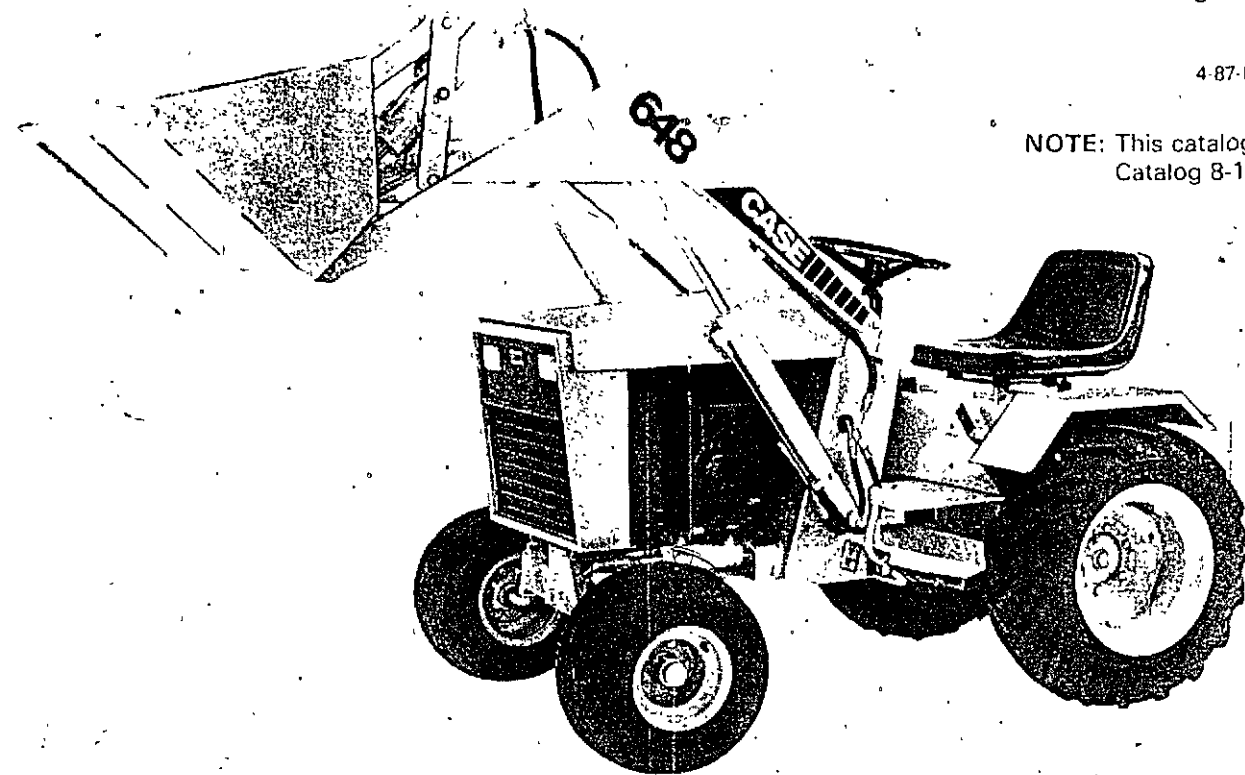


COMPACT WHEEL LOADERS
MODEL 648 AND 648BH
Parts Catalog No. 8-1422

4-87-RP-750 362

NOTE: This catalog replaces
Catalog 8-1421



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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.

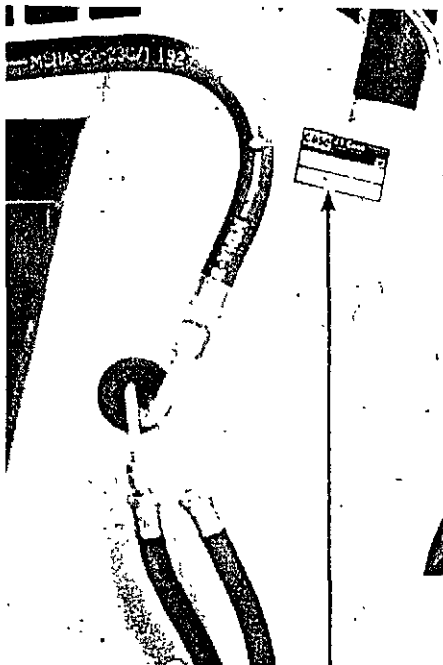
CATALOG REVISIONS

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

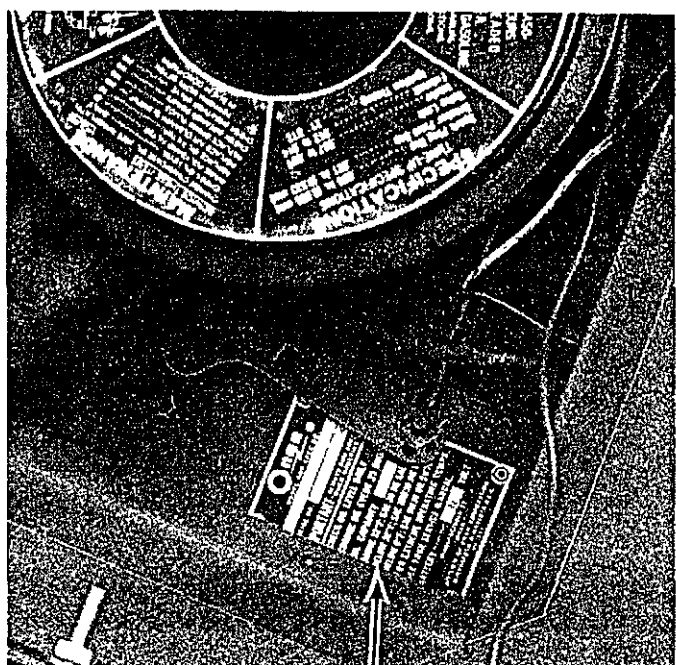
IMPORTANT: Put all revisions into the catalog as soon as possible.

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

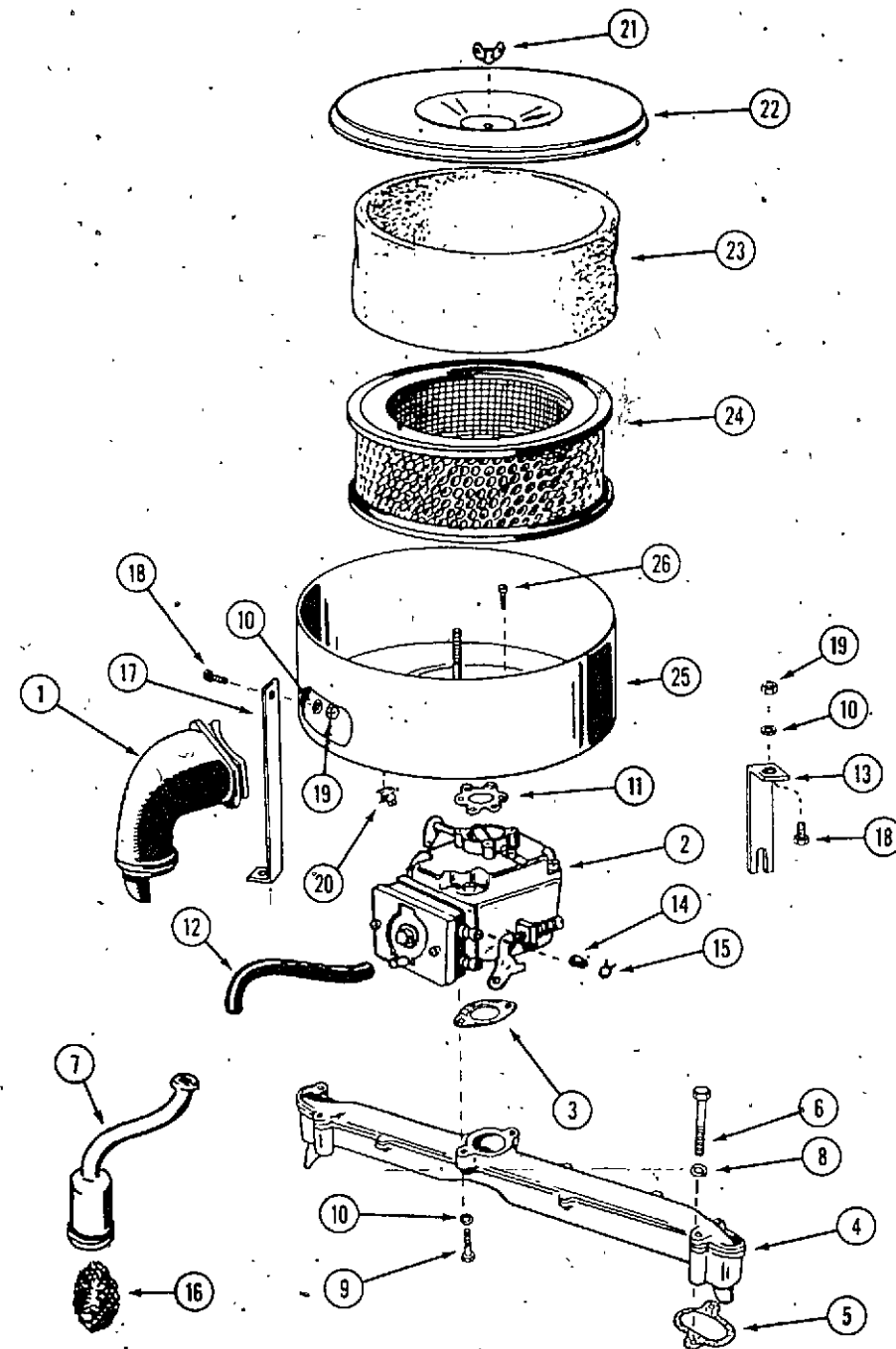
TRACTOR MODEL	ENGINE MODEL
648	C25262 ENGINE B48M-GAO18 SPEC. NO. 4184A

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.

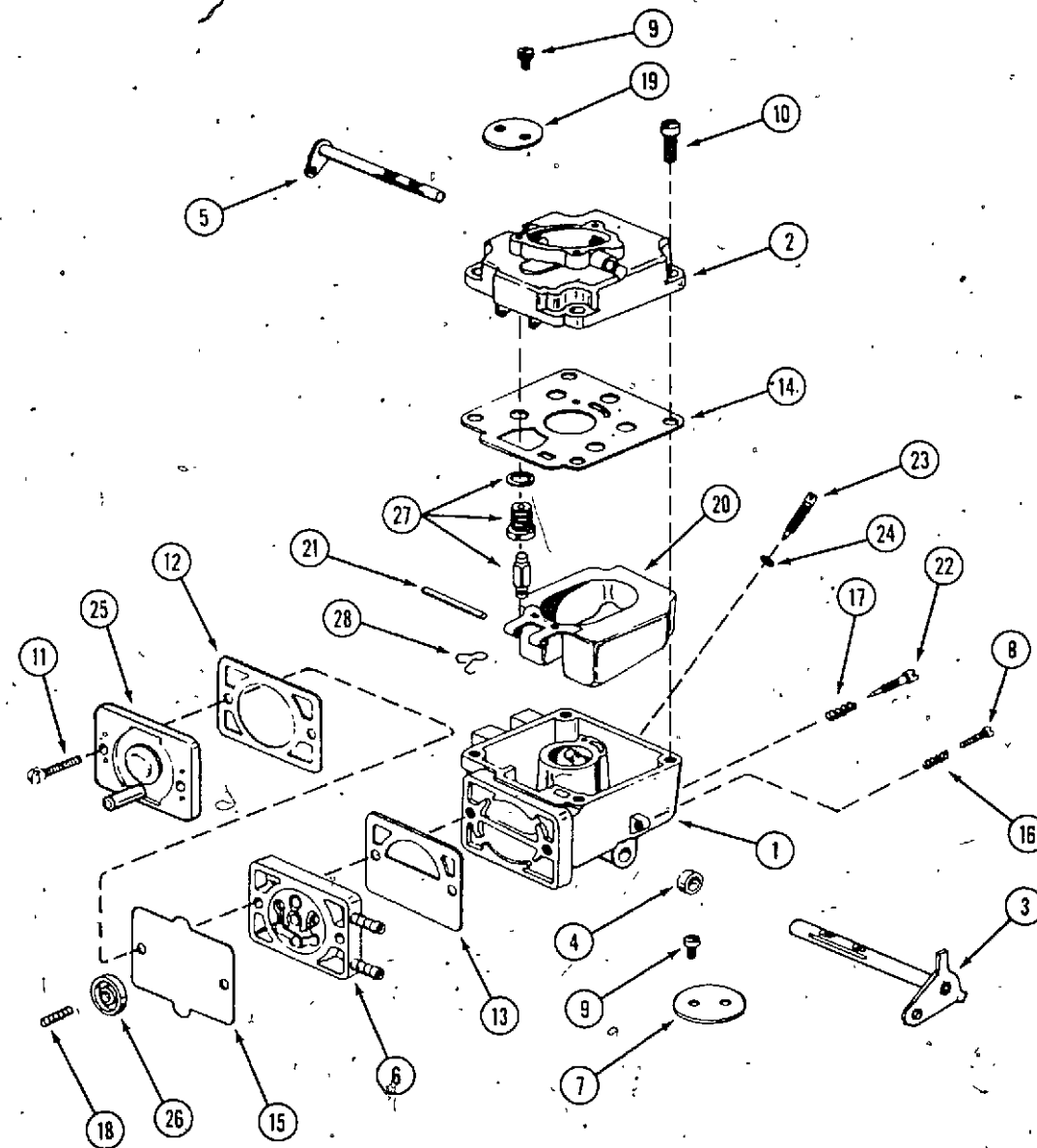
CARBURETOR, AIR FILTER AND MANIFOLD



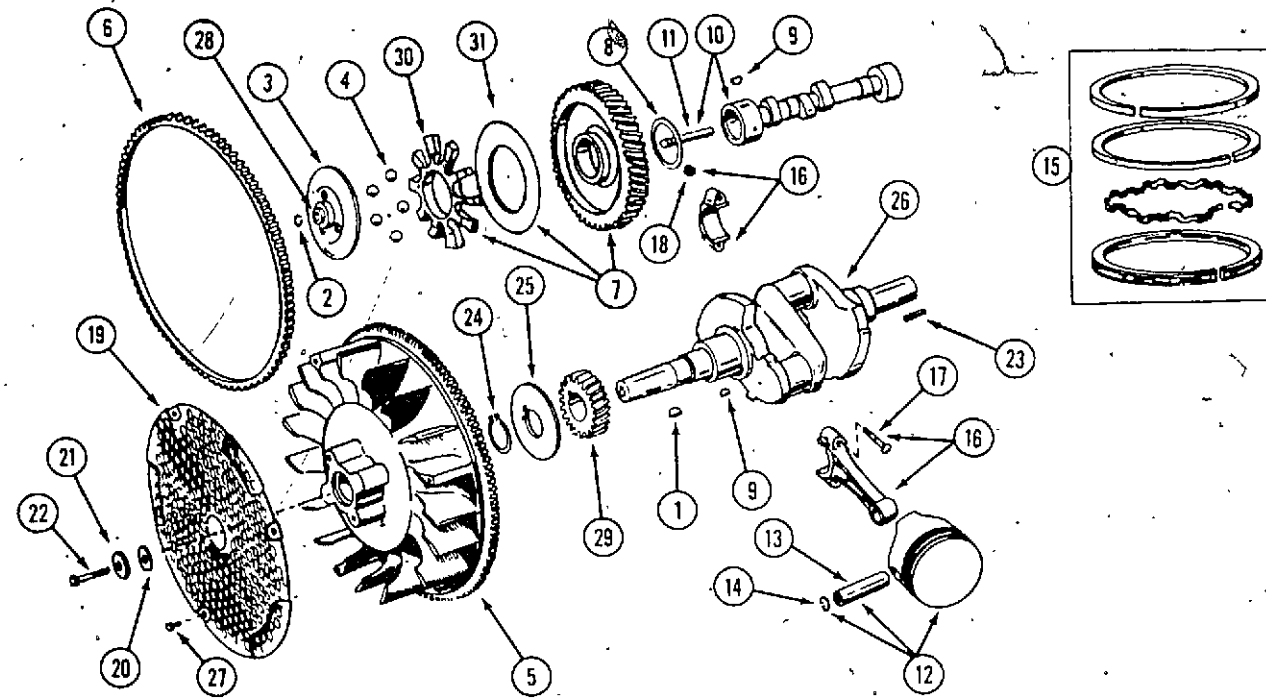
REF.	PART NO.	DESCRIPTION	REQ'D
1	C 20387	TUBE - air intake	1
2	C 27507	CARBURETOR AND FUEL PUMP ASSEMBLY (repairs page 7)	1
3	C 29953	GASKET - carburetor mounting	1
4	C 28720	MANIFOLD - engine intake	1
5	C 26202	GASKET - intake manifold	2
6	113- 121	BOLT - manifold 5/16" x 2"	4
7	C 24927	HOSE - breather	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



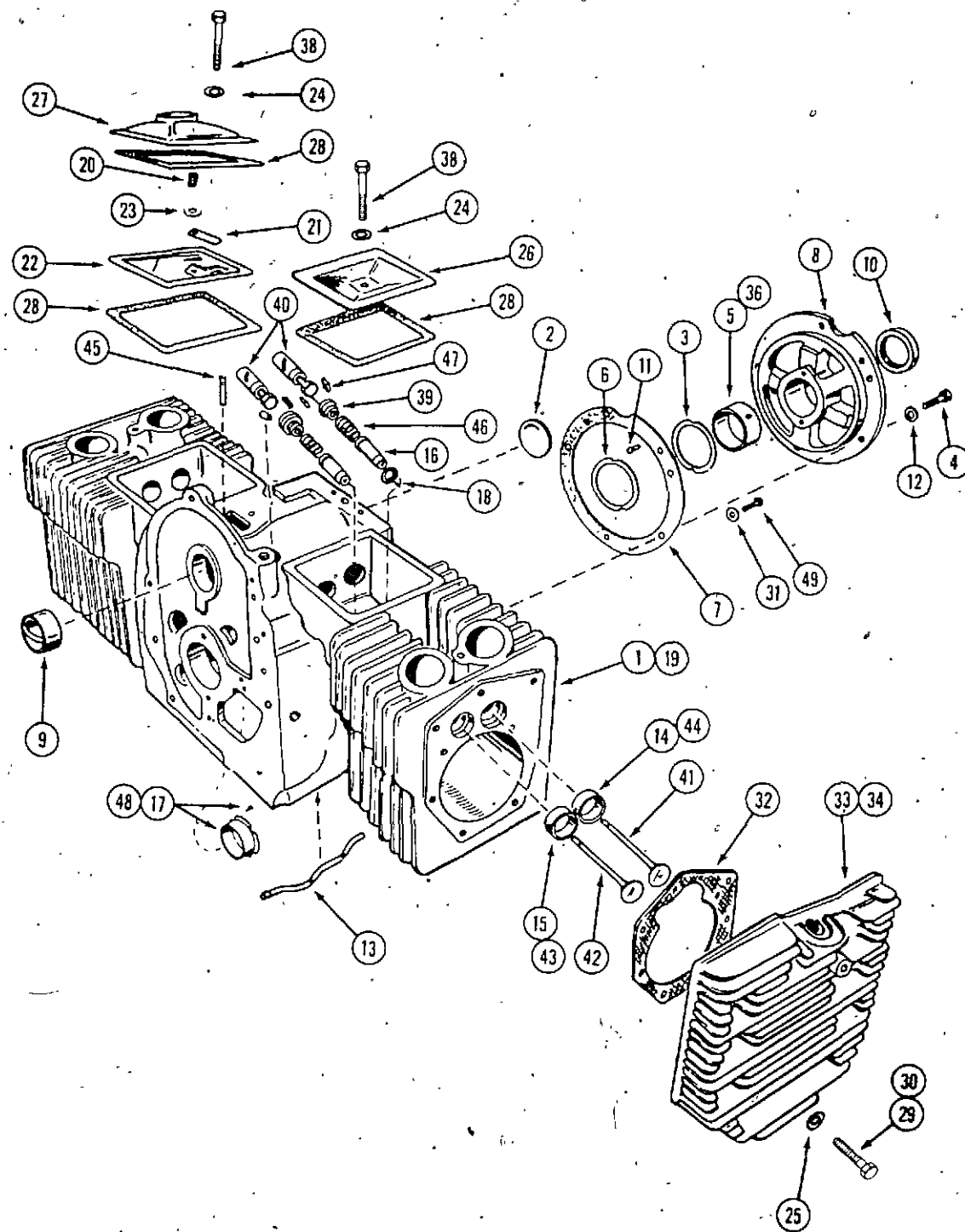
REF.	PART NO.	DESCRIPTION	REQ'D
1	NSS	BODY ASSEMBLY - carburetor (order C27507 carburetor)	1
2	NSS	SLEEVE ASSEMBLY - carburetor (order C27507 carburetor)	1
3	C 20425	SHAFT - throttle (See kit below)	1
4	C 20426	PACKING - shaft (See kit below)	1
5	C 20427	SHAFT - choke	1
6	C 20428	VALVE - plate assembly (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

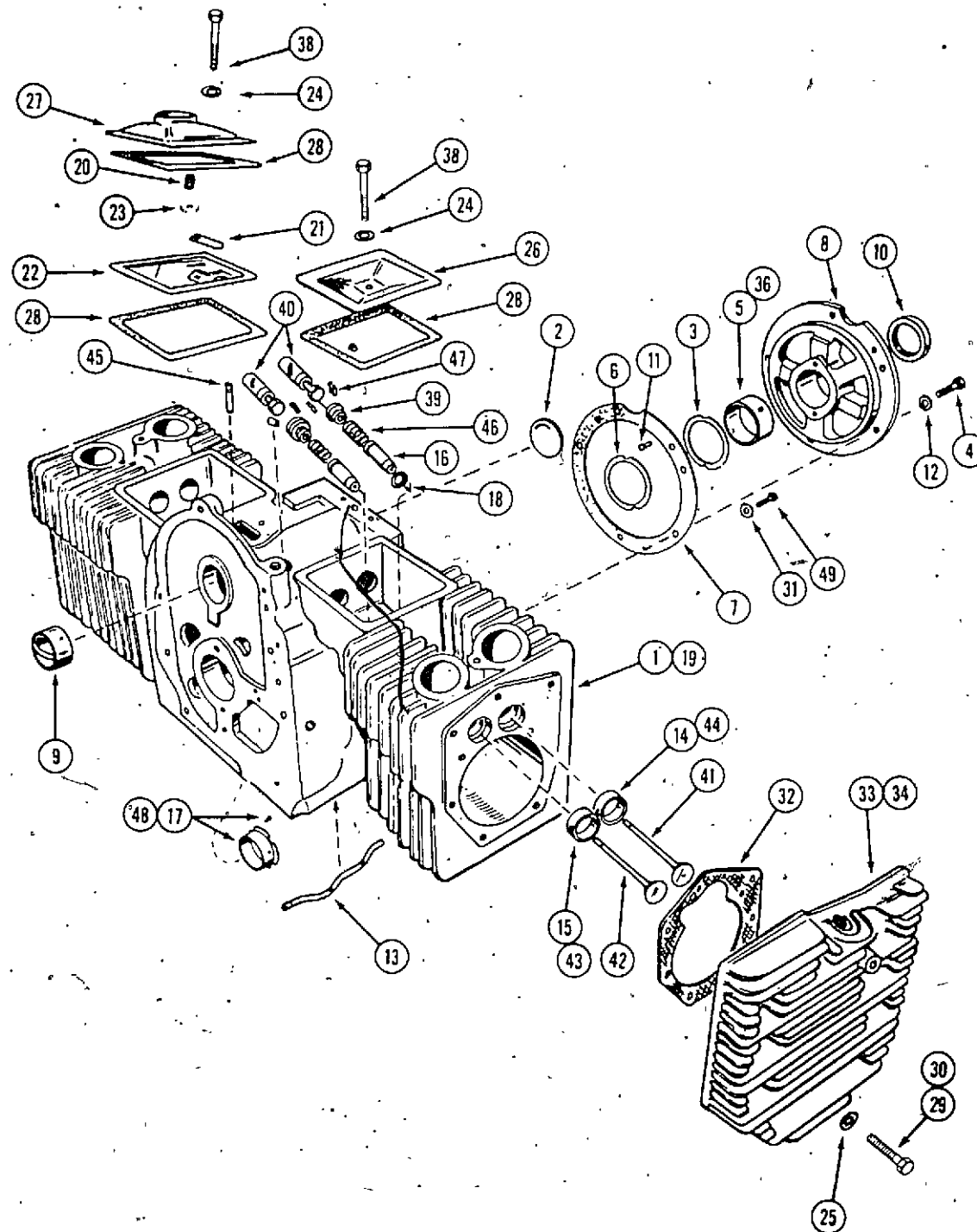
PISTON, CRANKSHAFT, FLYWHEEL AND CAMSHAFT

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

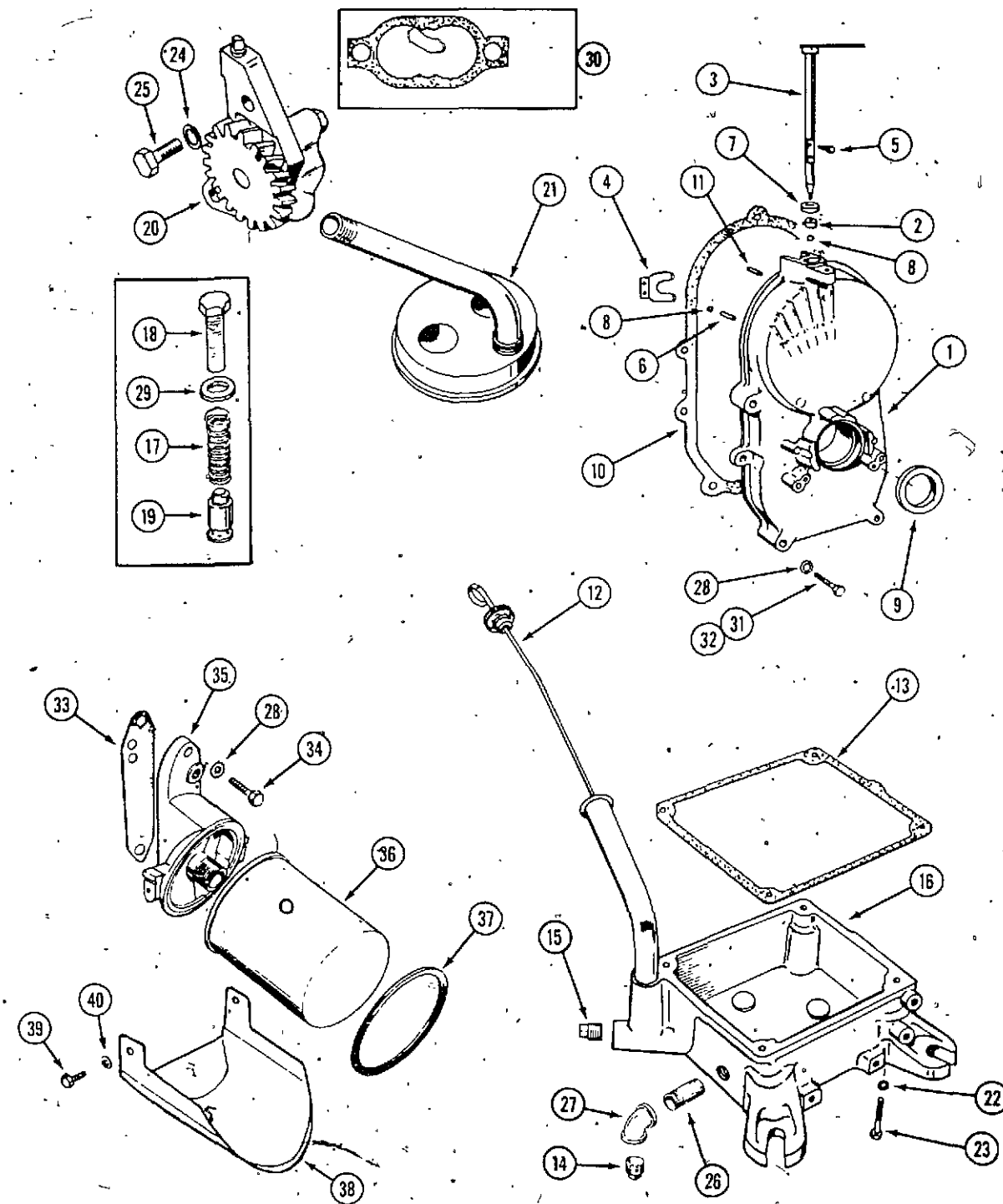
REF.	PART NO.	DESCRIPTION	REQ'D
1	C 25223	BLOCK ASSEMBLY - cylinder, standard bore	1
2	41- 26	PLUG - camshaft, expansion	1
3	C 20256	SHIM - rear bearing plate (.005") (0.13 mm)	UAR
4	113- 208	BOLT - 3/8" x 1-1/4" N.C. hex	5
5	C 22618	BEARING - crankshaft, rear (standard)	1
6	C 20267	WASHER - thrust, 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

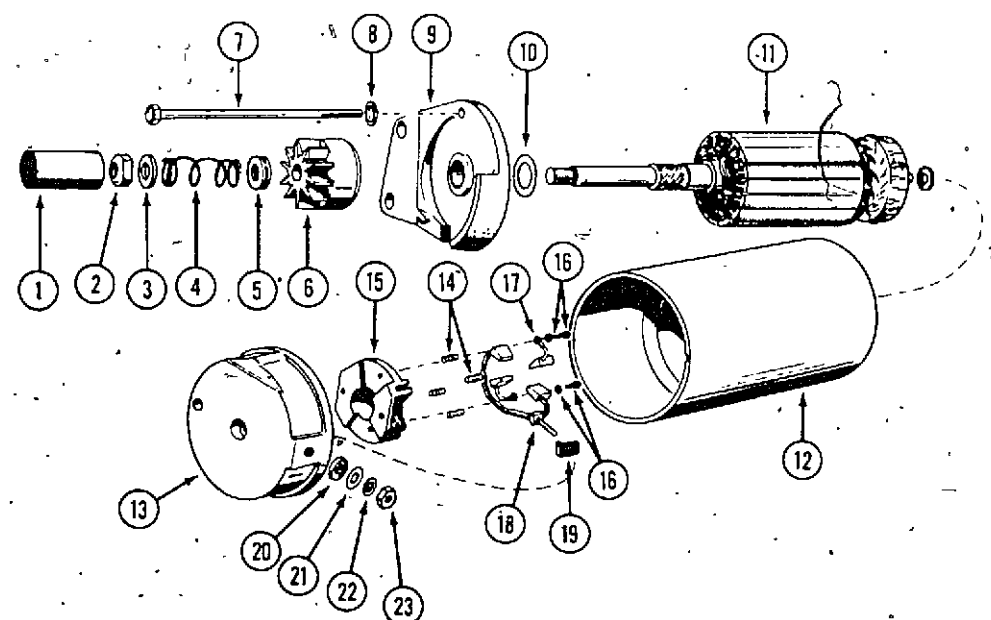
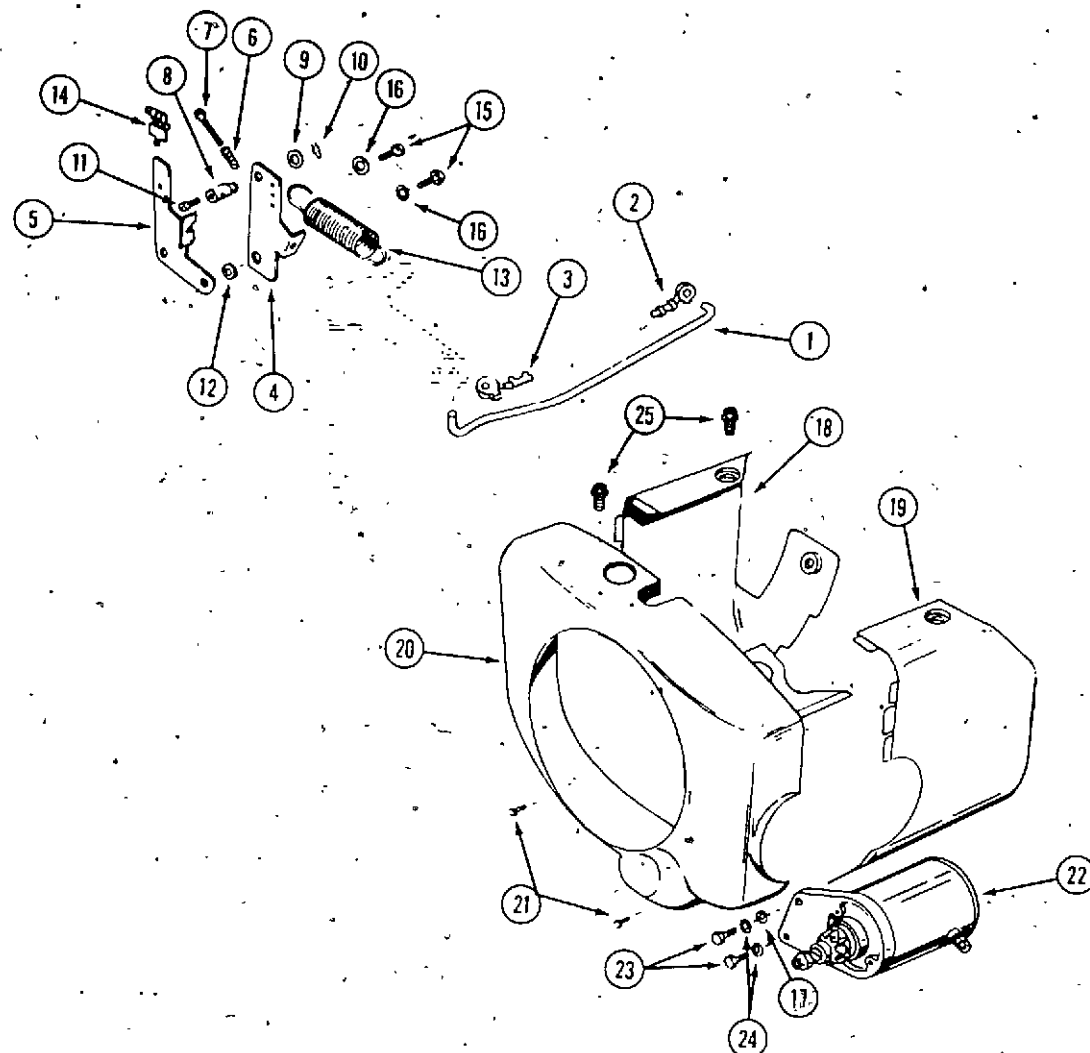
REF.	PART NO.	DESCRIPTION	REQ'D
40	C 20471	TAPPET - valve (.002" oversize) (0.05 mm)	4
40	C 20277	TAPPET - valve (.005" oversize) (0.13 mm)	4
41	C 29754	VALVE - intake	2
42	C 29755	VALVE - exhaust	2
43	C 20283	INSERT - valve seat, exhaust (.002" oversize) (0.05 mm)	2
43	C 29976	INSERT - valve seat, exhaust (.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



MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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



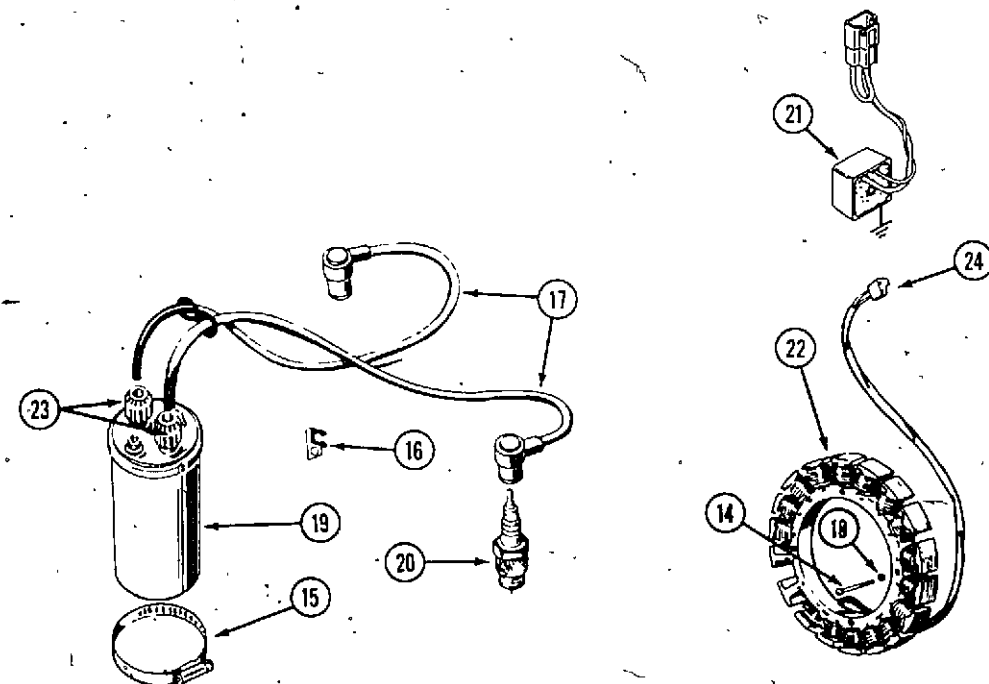
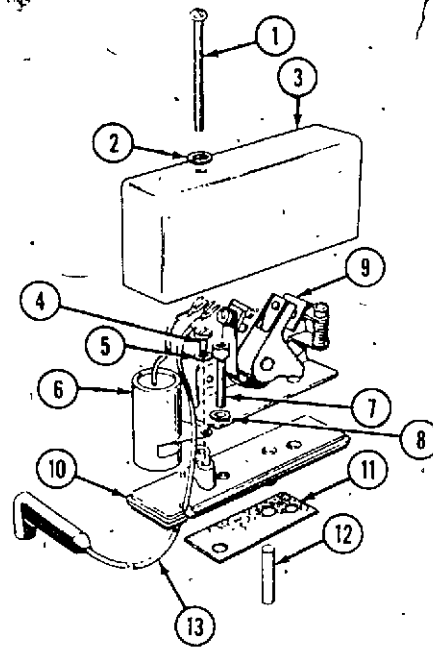
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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

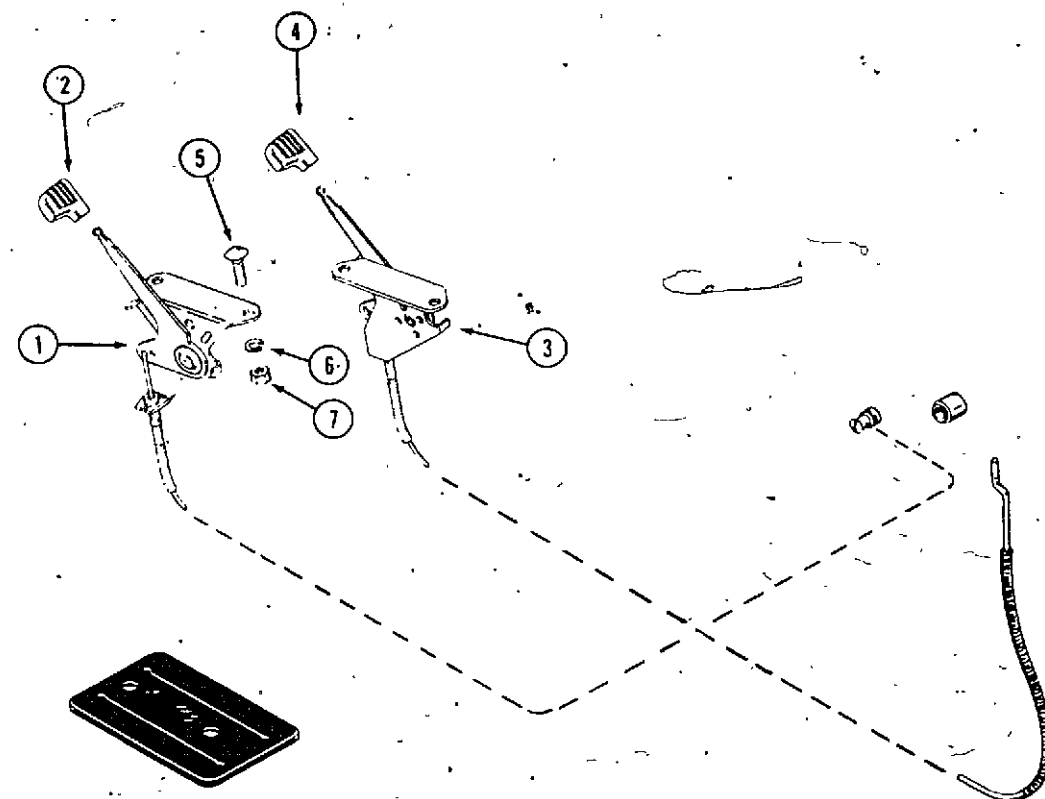
	C	26508	KIT - cover and drive retainers	1
1	NSS		COVER - dust	1
2	NSS		NUT - stop	1
3	NSS		WASHER - stop nut	1
4	NSS		SPRING - tension	1
5	NSS		SPACER - dust cover	1
6	C	20274	DRIVE ASSEMBLY	1
7	C	20278	BOLT - through	2
8	192-	19	LOCK WASHER - through bolt	2
9	C	20333	CAP ASSEMBLY - drive end	1
10	C	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 tooth 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



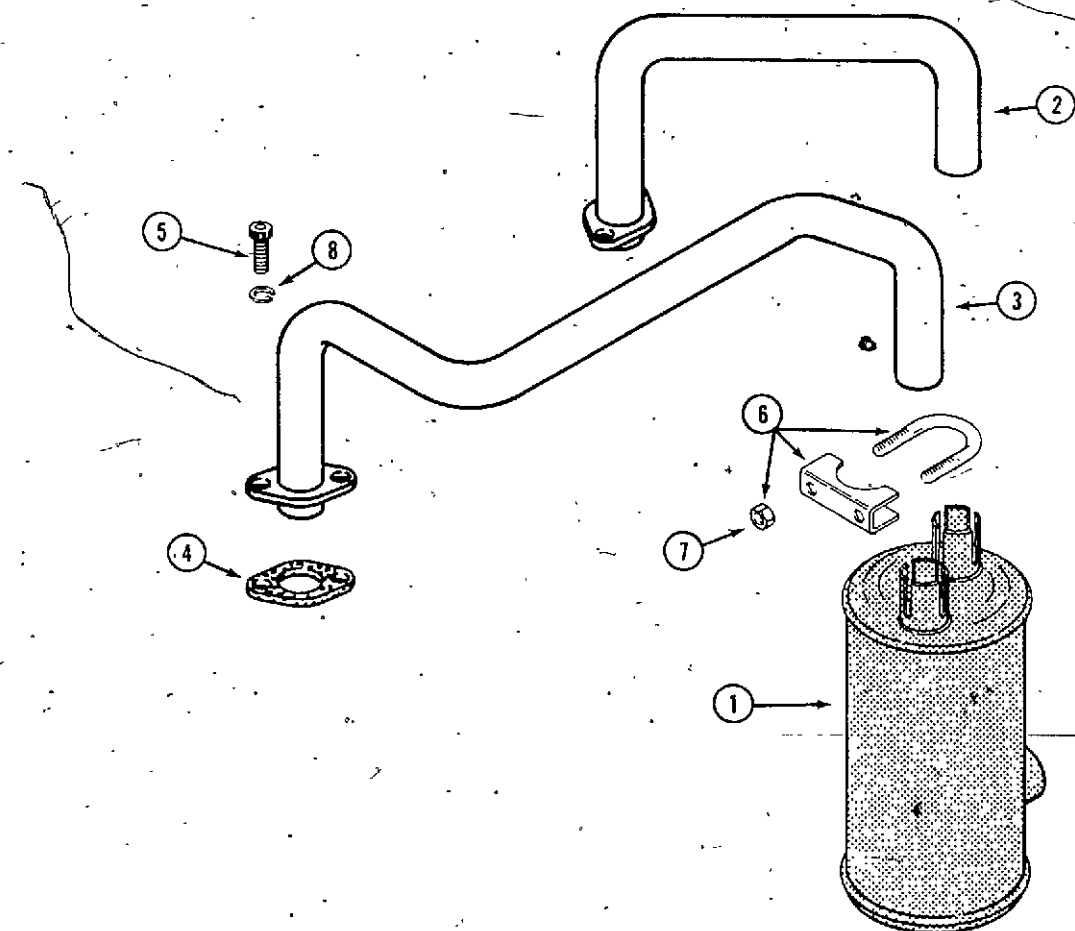
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

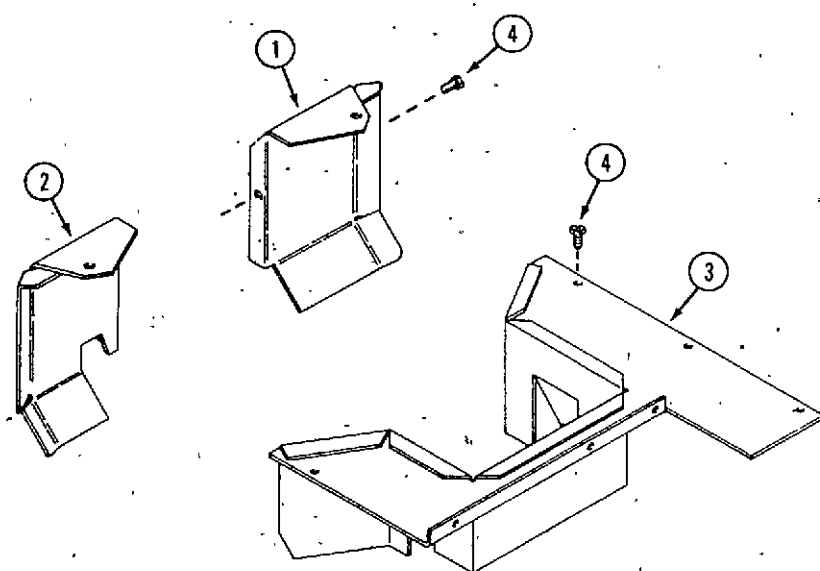
CHOKE AND THROTTLE

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



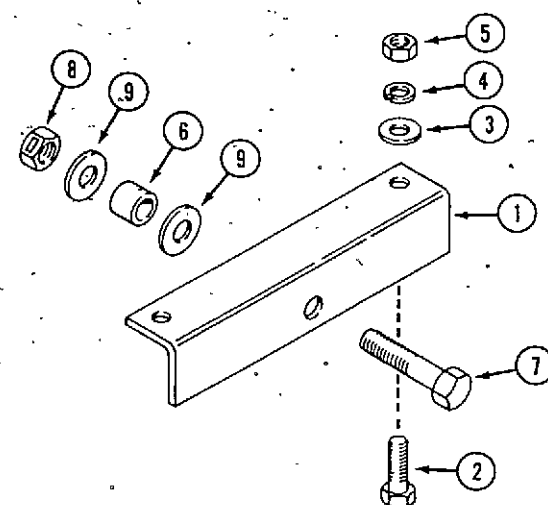


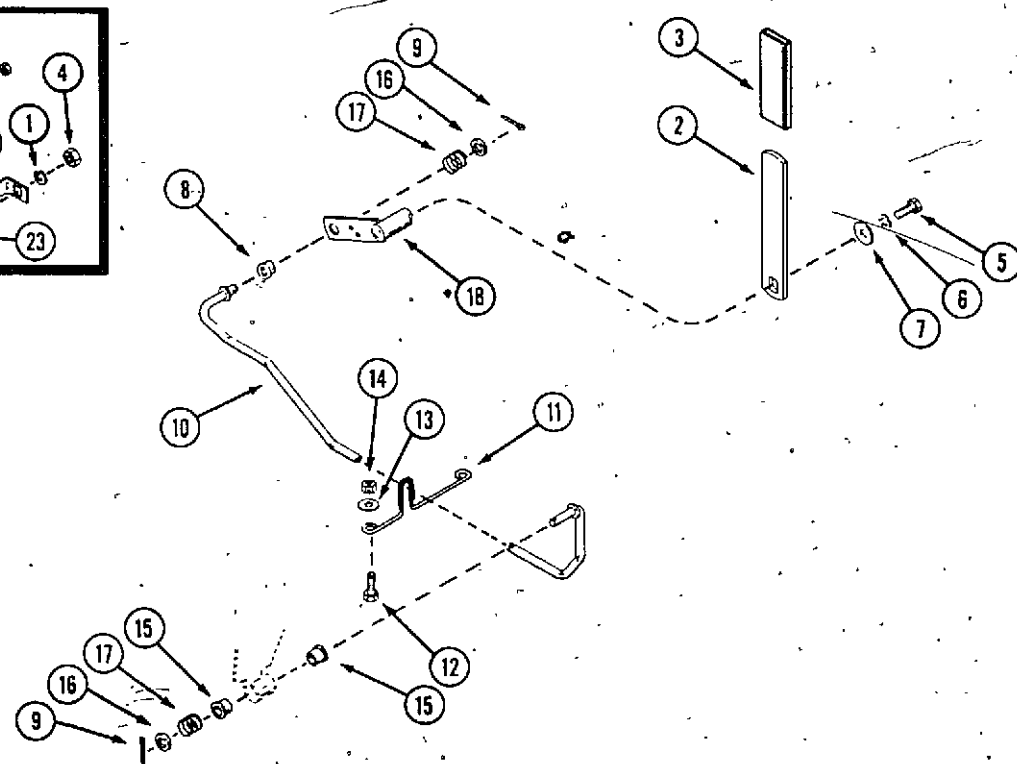
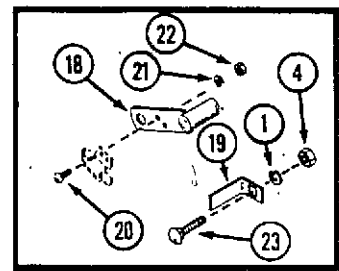
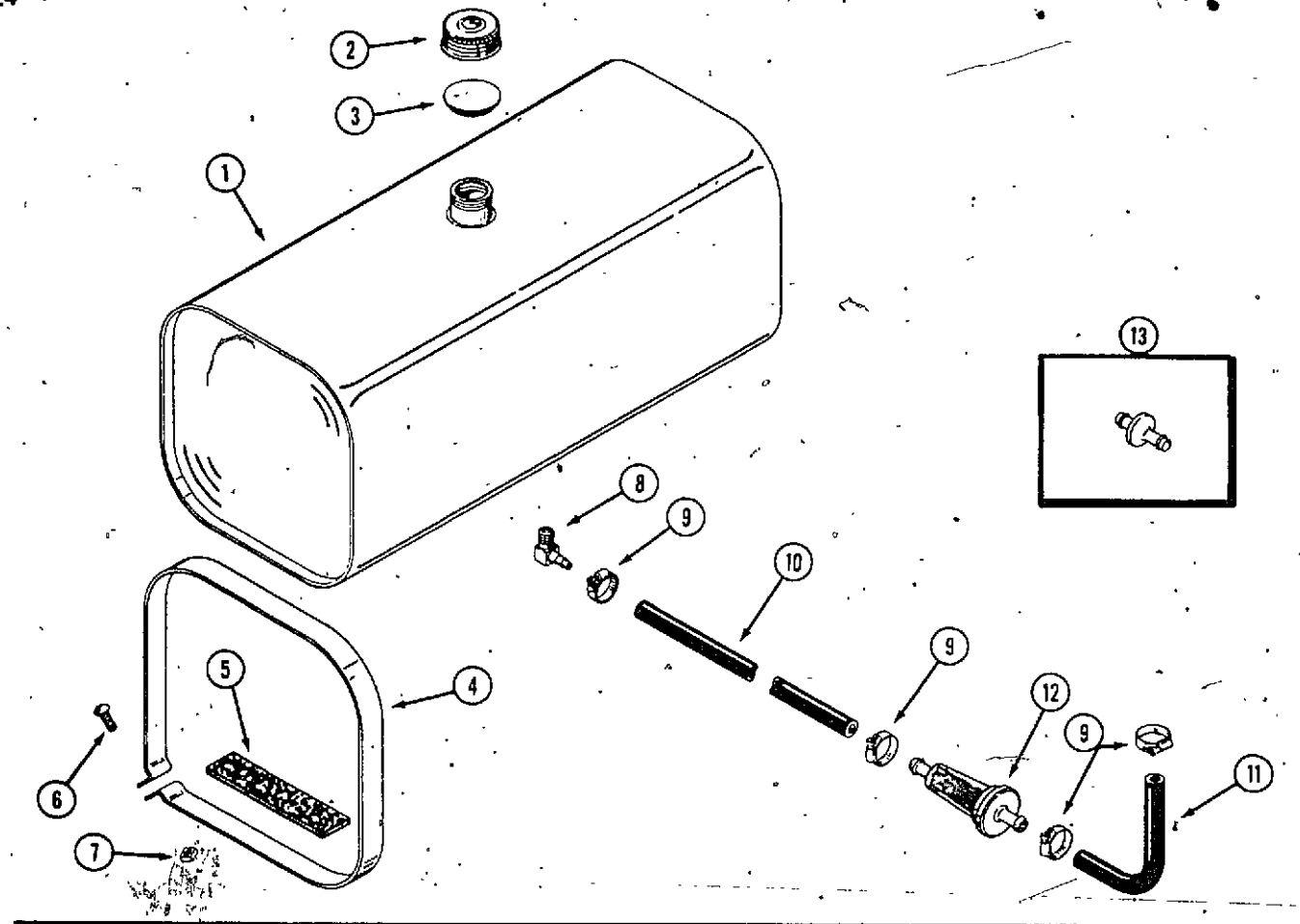
BAFFLES AND SHIELDS

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





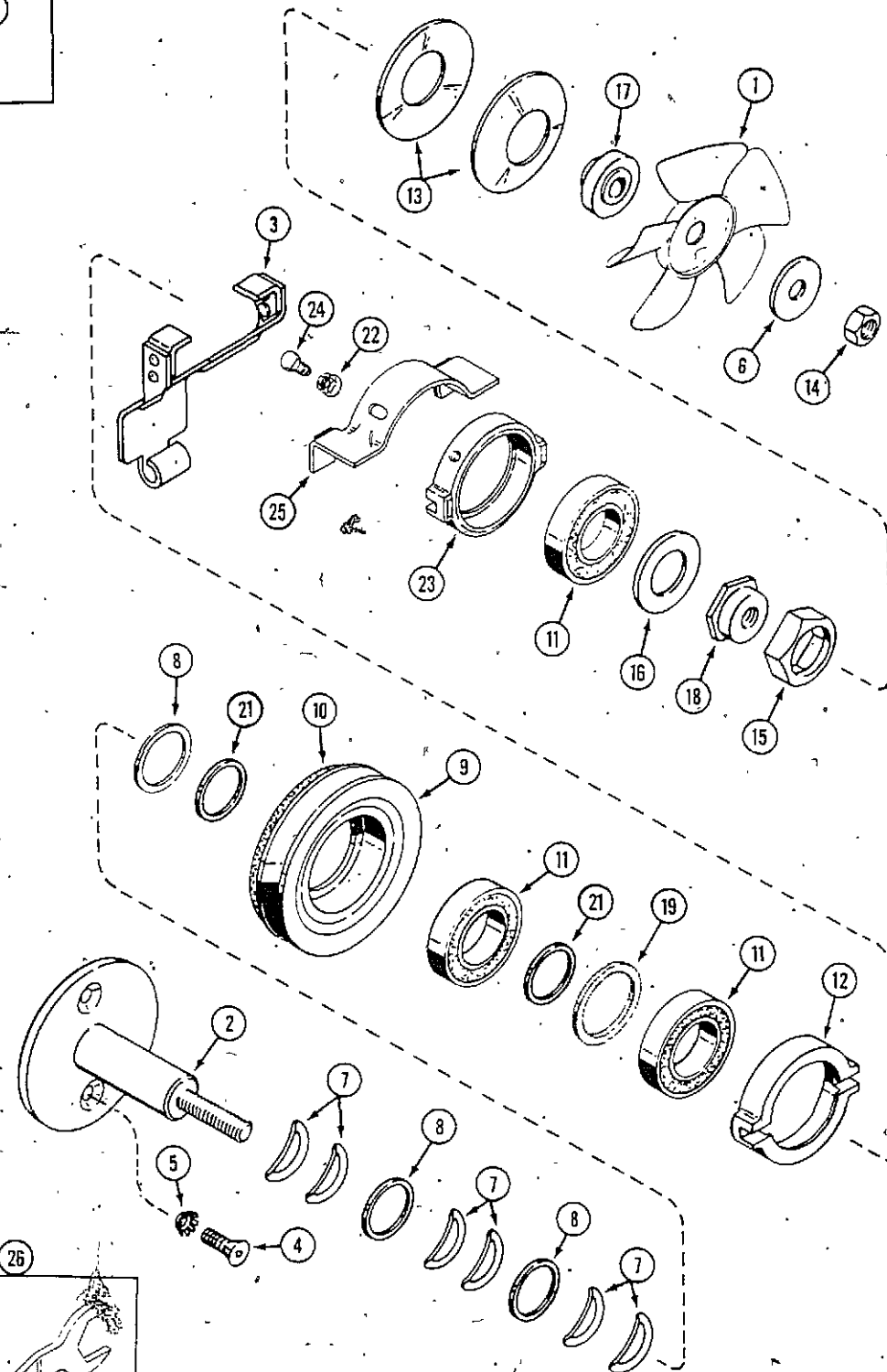
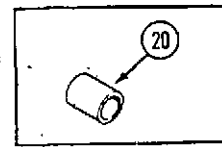
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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 1/2"	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)

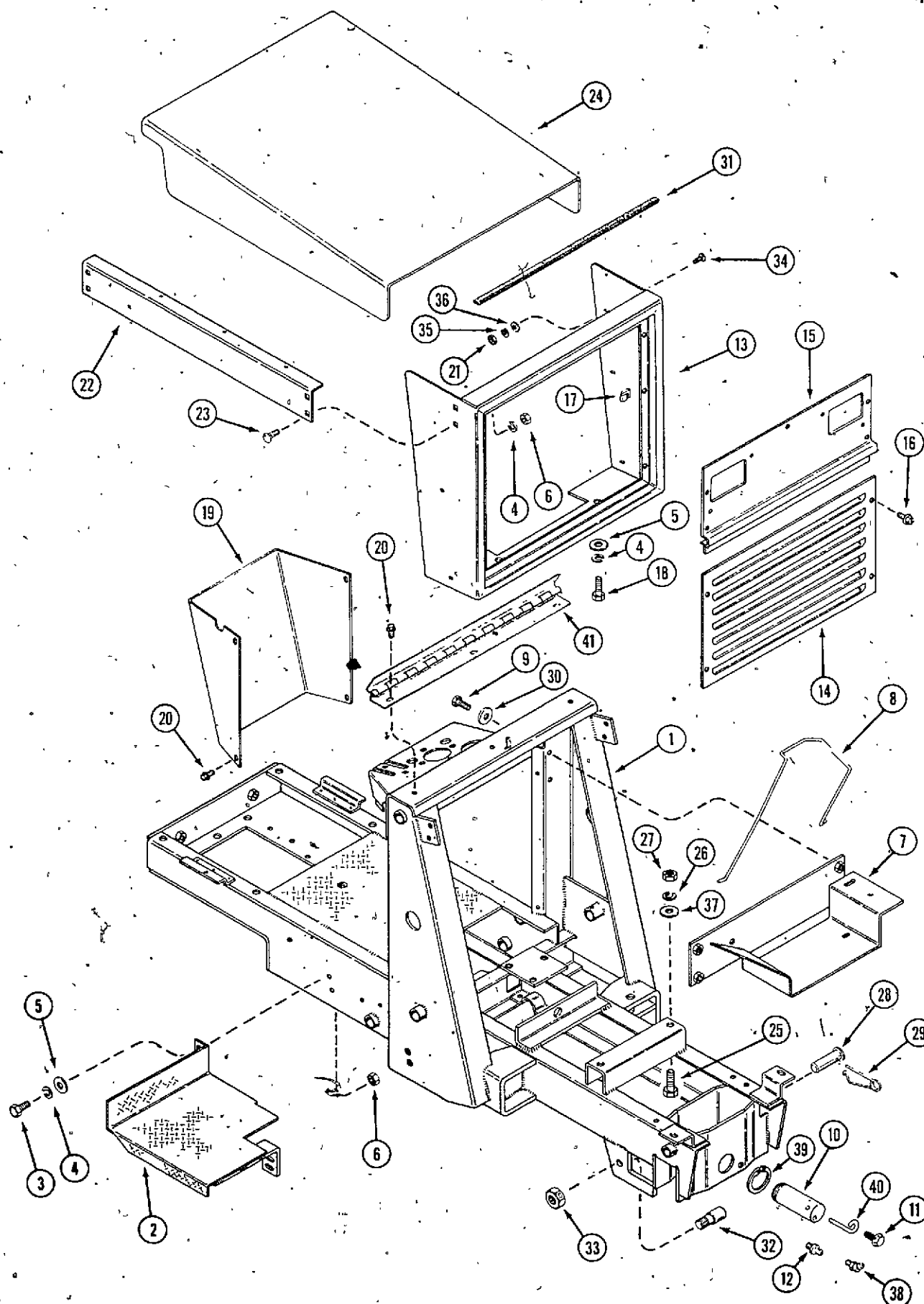
REF.	PART NO.	DESCRIPTION	REQ'D
	C 27152	KIT - clutch and fan assembly (use before S/N 14045699)	1
	C 31026	CLUTCH AND FAN ASSEMBLY - use S/N 14045699 and after	1
1	C 16616	FAN - cooling	1
2	C 24741	HUB - clutch	1
3	C 27031	KIT - engaging arm (use before S/N 14045699)	1
3	C 26166	ARM - engaging (use 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

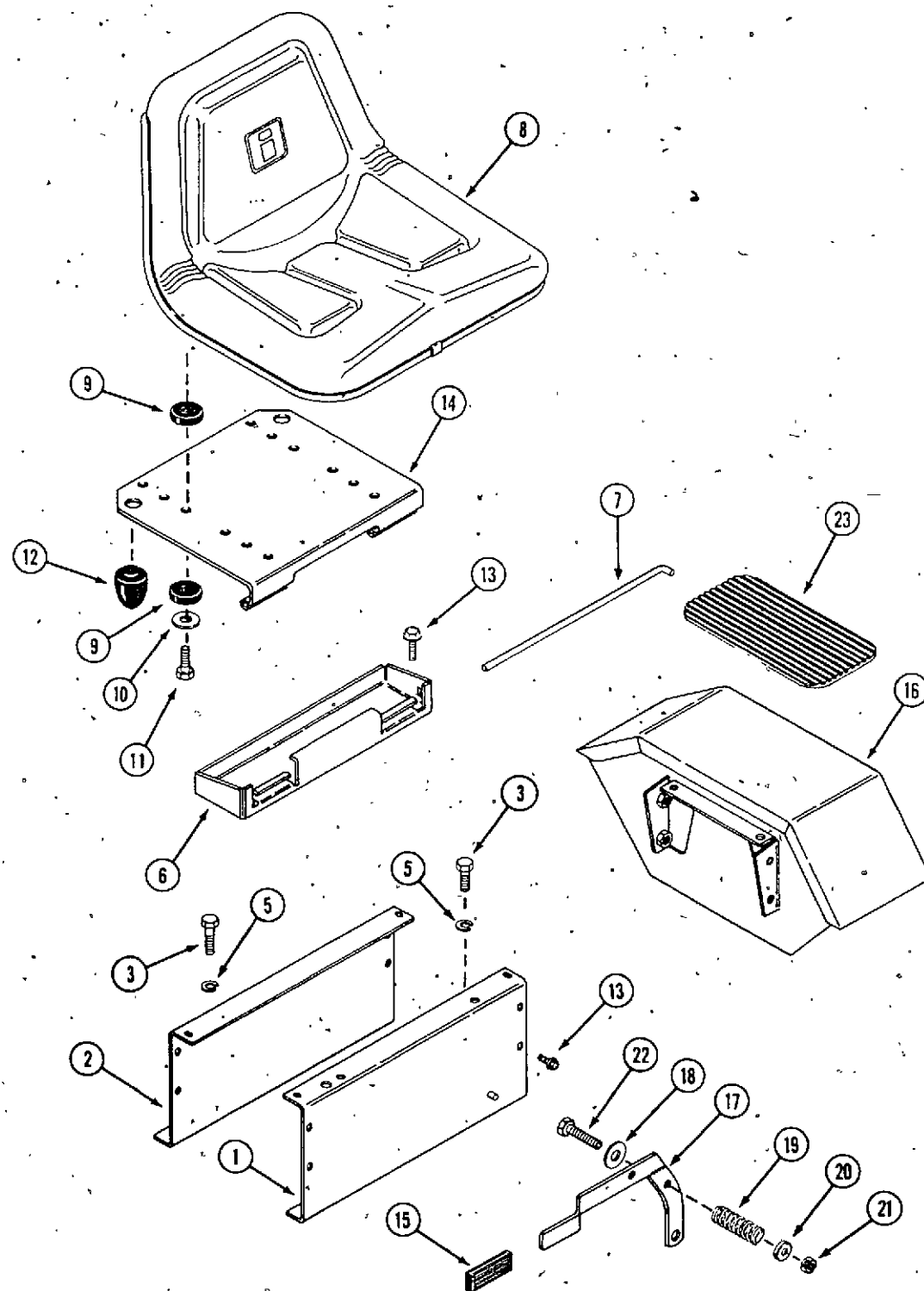
*Some units use (2) .050" spacers.
Use C29811 for service.

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



HOOD, FRAME AND GRILLE

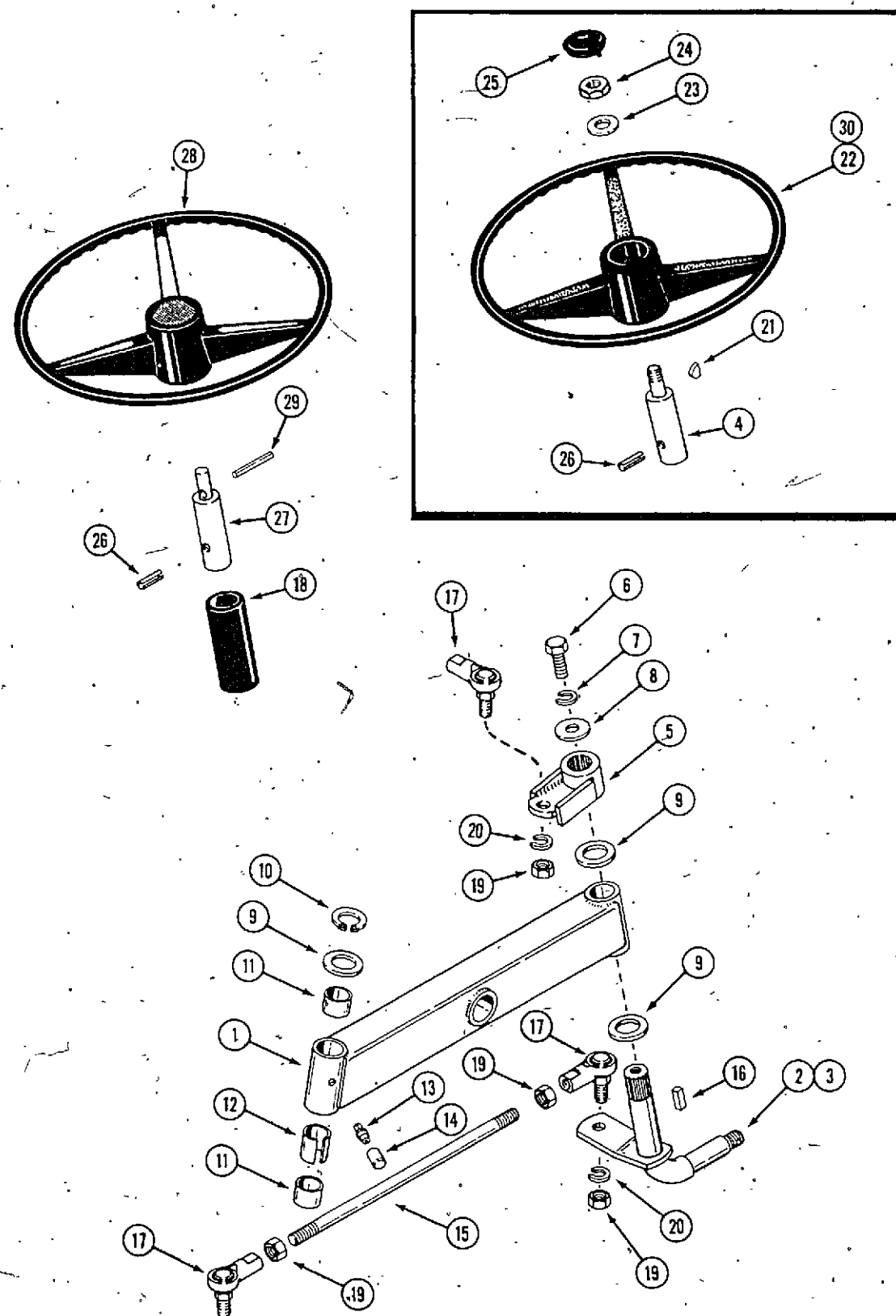
REF.	PART NO.	DESCRIPTION	REQ'D
1	NSS	FRAME - main 648 (contact Ingersoll Service Parts for availability)	1
1	NSS	FRAME - main 648BH (contact Ingersoll Service Parts for availability)	1
2	C 25933	PAD - foot, L.H.	1
2	C 25935	PAD - foot, R.H.	1
3	113- 207	BOLT - 3/8" x 1" NC hex	8
4	192- 21	LOCK WASHER - 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



MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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

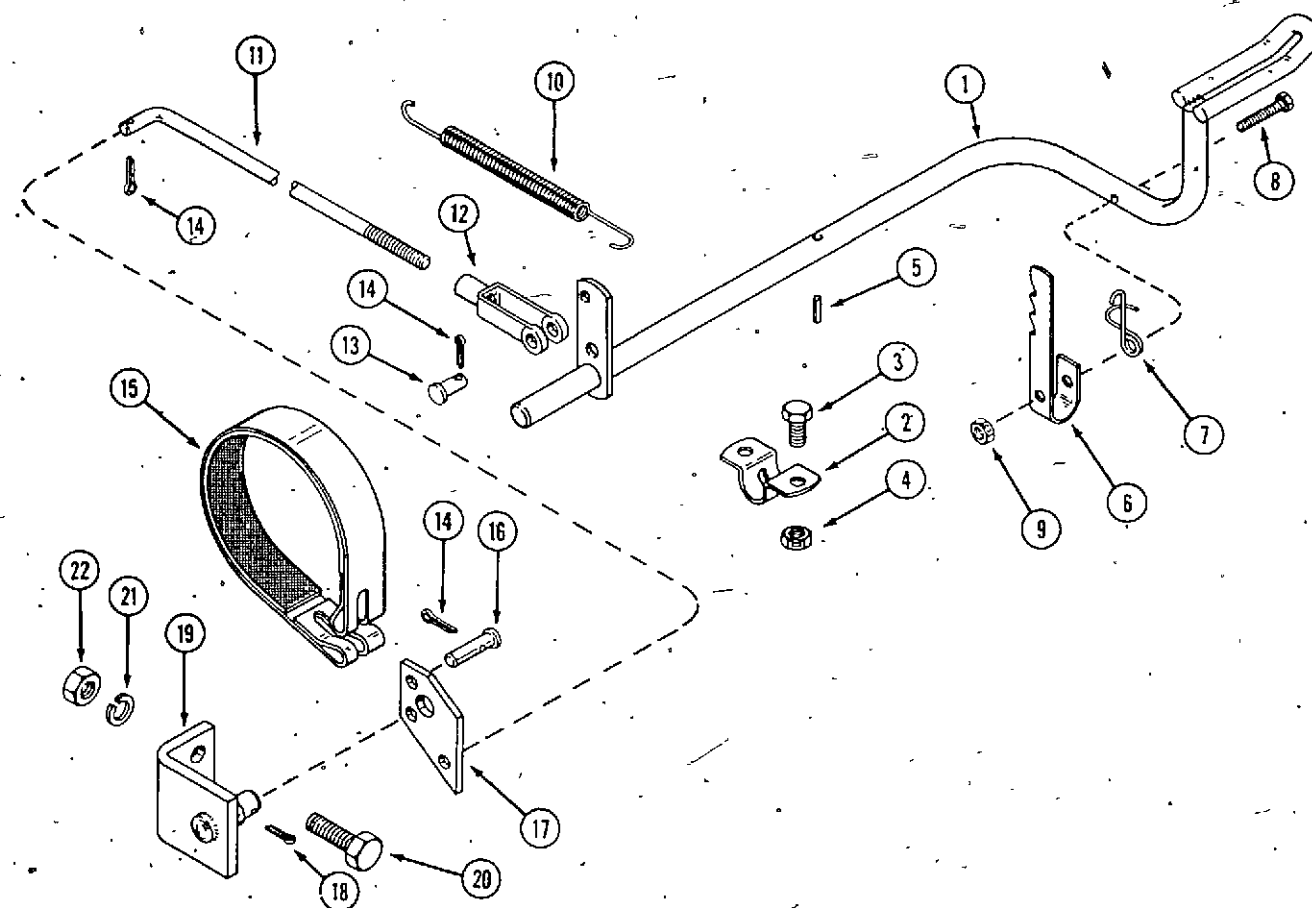


MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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

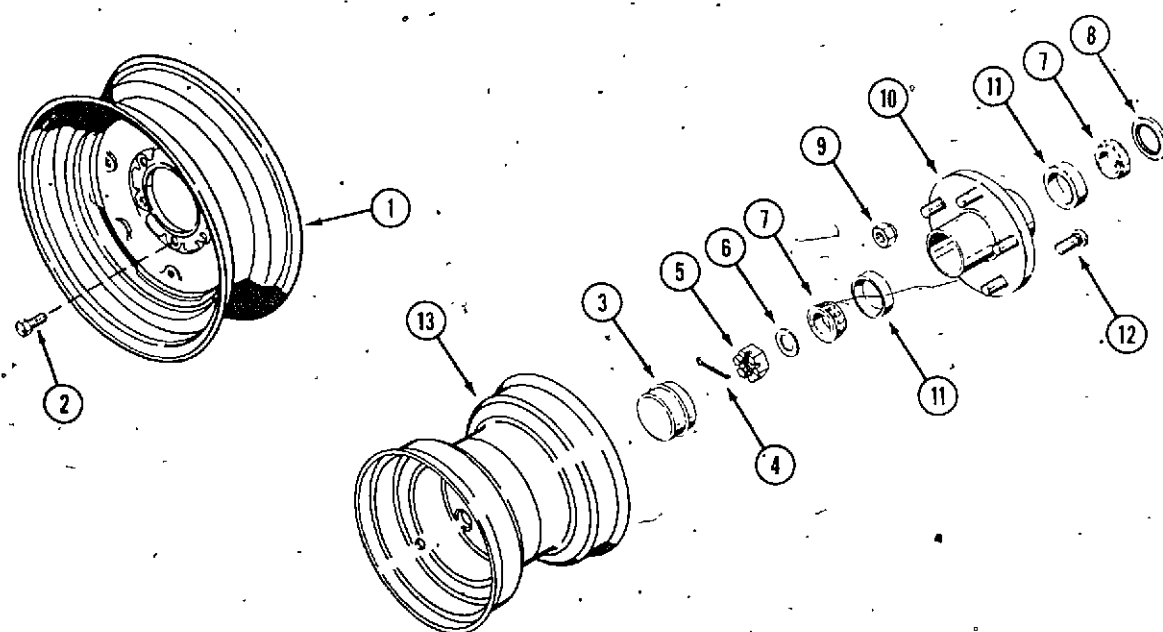
BRAKE ASSEMBLY

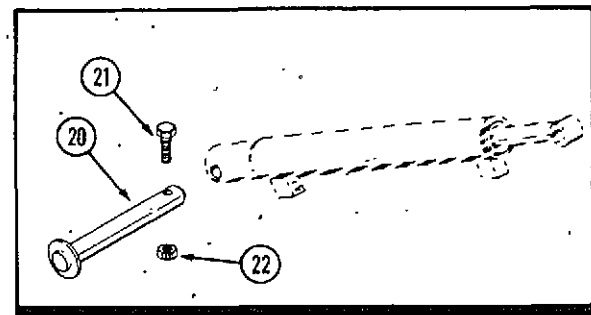
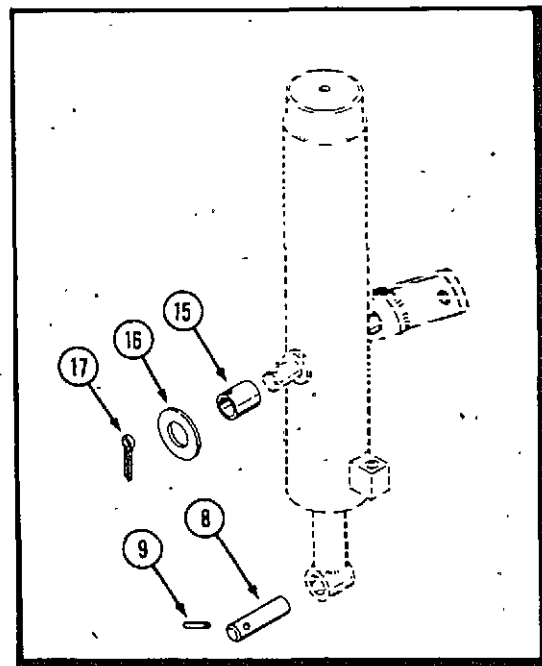
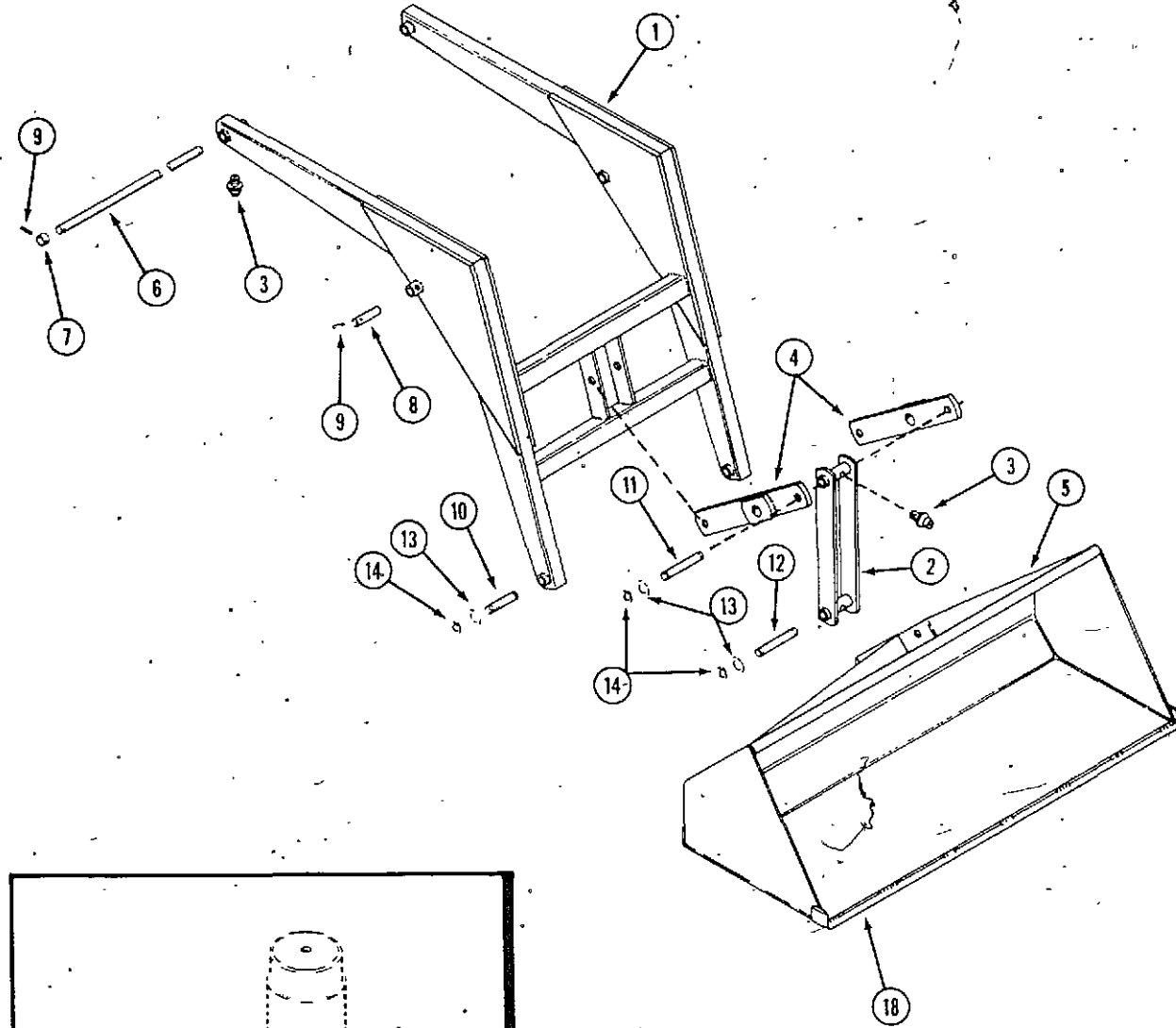


REF.	PART NO.	DESCRIPTION	REQ'D
1	C 26683	PEDAL - brake	1
2	C 18029	BRACKET - saddle	2
3	113- 206	BOLT - 3/8" x 3/4" NC hex	4
4	131- 1181	NUT - lock 3/8" NC hex	4
5	138- 92	PIN - roll 3/16" x 3/4"	1
6	C 18105	LOCK - brake	1
7	C 17541	SPRING - brake lock	1
8	113- 5	BOLT - 1/4" x 1-1/2" NC hex	1
9	131- 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
	NSS	HUB - wheel	2
13	C 26902	WHEEL - rim, front(brown)	2

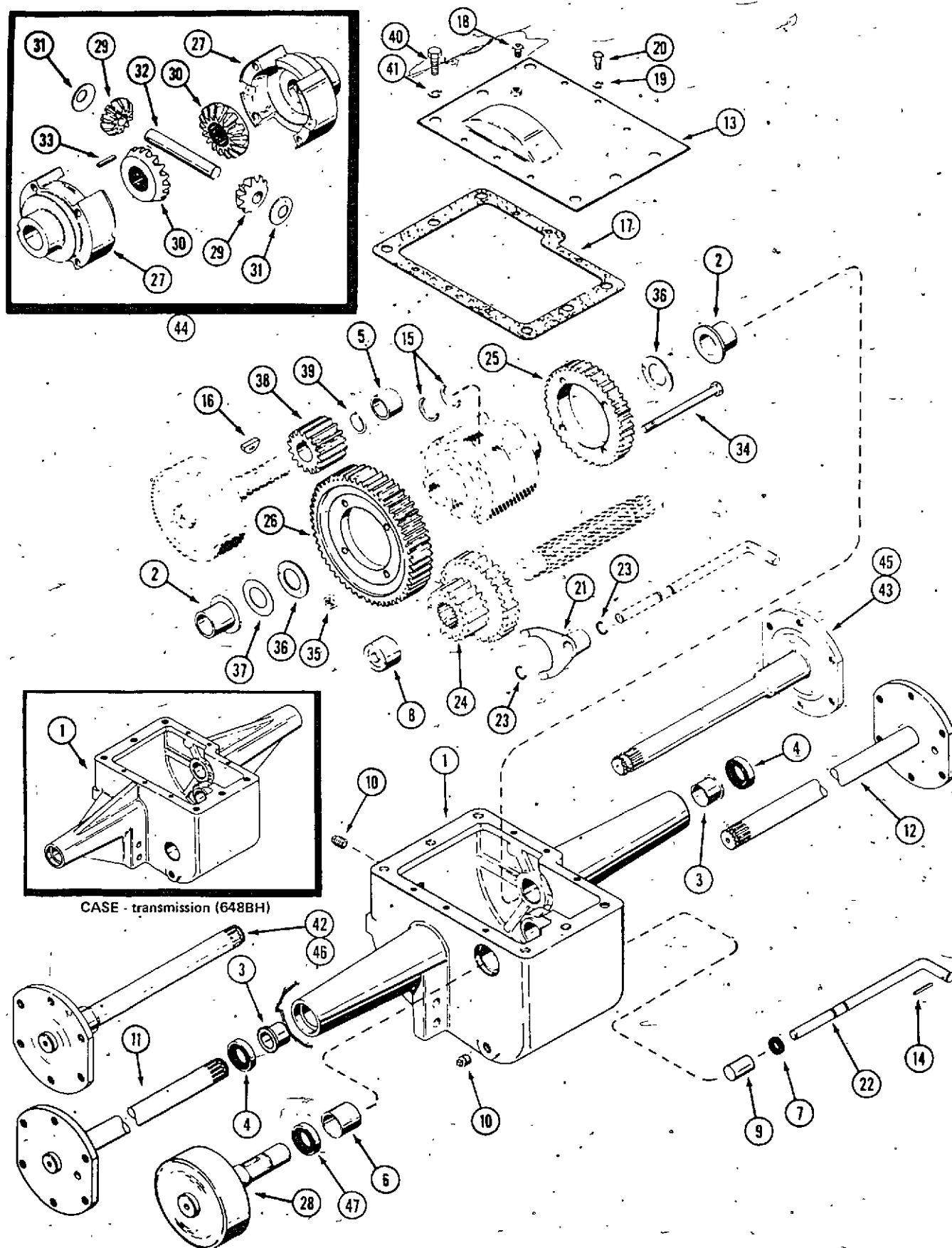




MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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	1
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

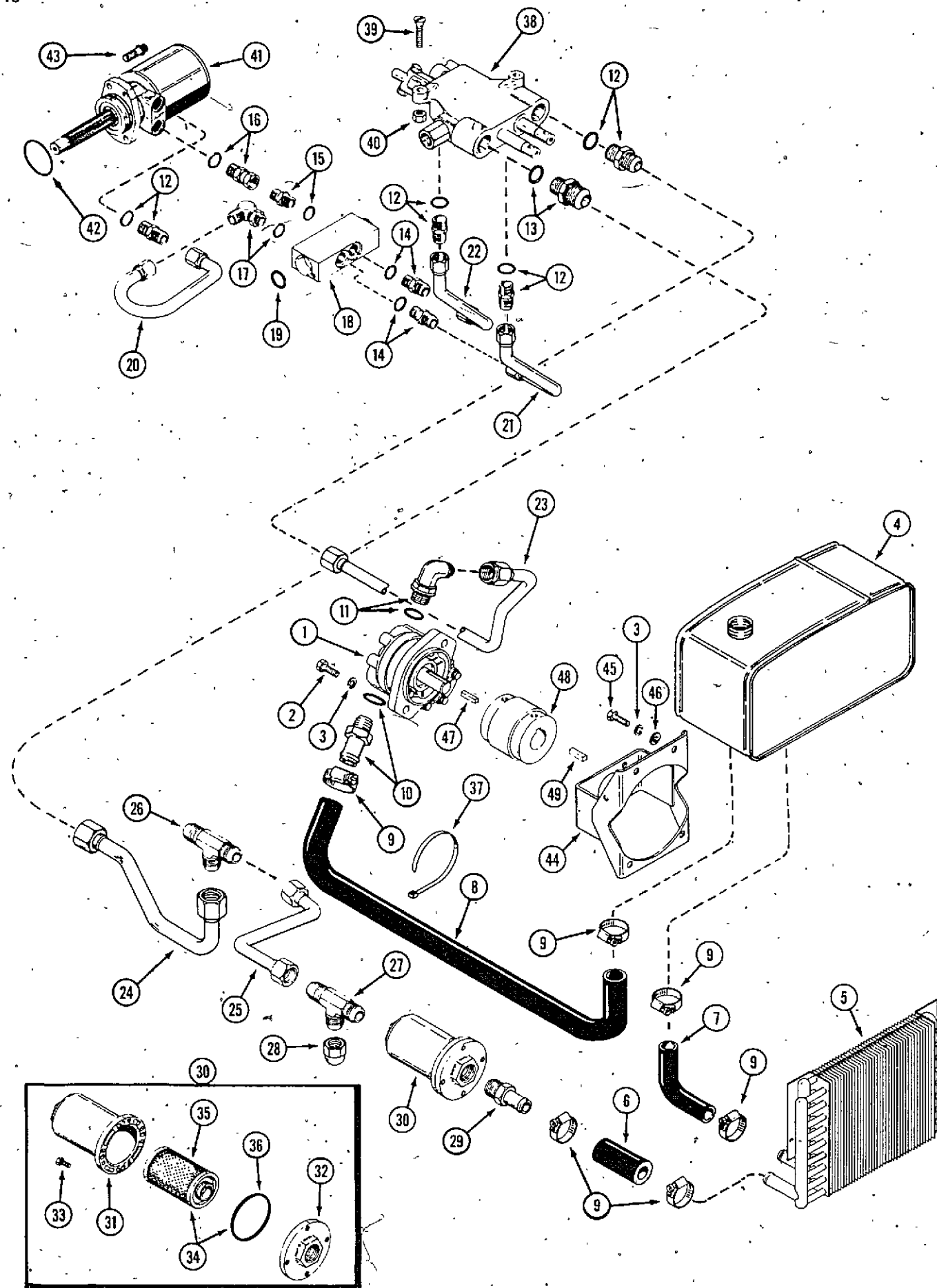
*Before S/N 14014289 use C26249, C26245 and C18097

**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)

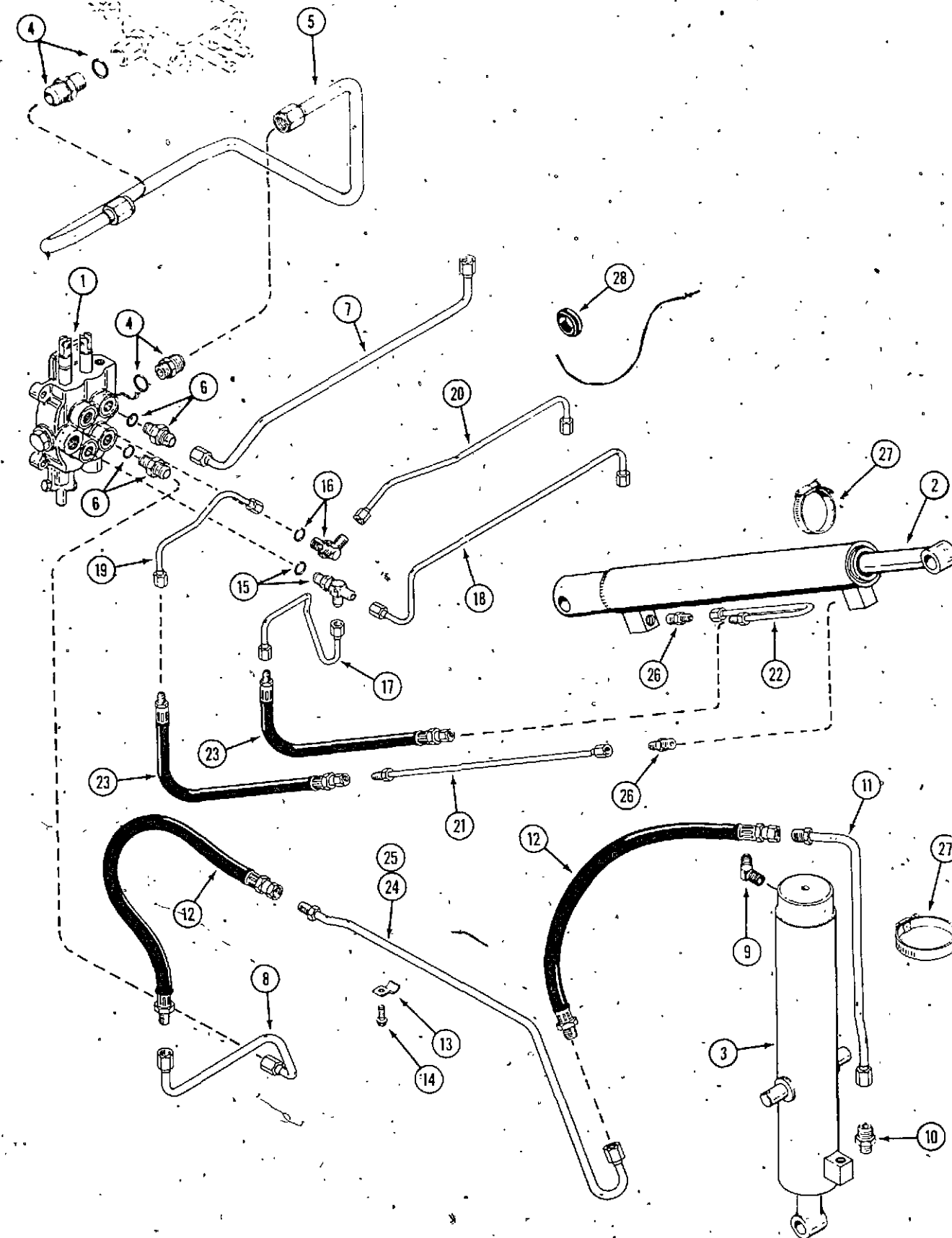
REF.	PART NO.	DESCRIPTION	REQ'D
1	NSS*	PUMP - hydraulic (repairs page 53) (use C28370, C28371, 217-179)	1
2	C 28370**	PUMP - hydraulic (repairs page 53)	1
2	61-	SCREW - 3/8" - 16 - 1" hex socket head N.C. (use before S/N 14030241)	2
2	62-	SCREW - 3/8" - 24 x 1" N.F. (use S/N 14030241 and after)	2
3	192-	LOCK WASHER - 3/8"	6
4	C 25952	RESERVOIR - oil	1
5	C 25376	EXCHANGER - heat (use before S/N 14030233)	1
5	C 26456	EXCHANGER - heat (use S/N 14030233 and after) shown	2
6	NSS	HOSE - rubber 3/4" I.D. (use C22902)	1
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 and after) (cut to size)	1
8	C 28293	HOSE - rubber 1" I.D.	1
9	214-	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)	4
13	218-	FITTING - travel valve outlet (includes 218-5007 "O" ring)	1
14	218-	FITTING - hydraulic (includes 218-5006 "O" ring)	2
15	NSS	FITTING - hydraulic (includes 218-5006 "O" ring) (use 218-5406 and 218-5254)	1
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	2
20	C 24994	TUBE - holding valve to hydraulic motor	1
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	9
38	C 25968	VALVE - hydraulic, travel control (repairs page 49)	1
39	171-	SCREW - 5/16" - 18 x 1-1/4" flat head	2
40	131-	NUT - lock, 5/16" - 18 hex	2
41	NSS	MOTOR - hydraulic drive (repairs page 55)	1
42	C 28949	SEAL - hydraulic motor to case	1
43	166-	BOLT - 1/2" - 13 x 1-1/4" 12 point flanged	4
44	C 25948	SUPPORT - pump	1
45	113-	BOLT - 3/8" x 3/4"	4
46	195-	WASHER - 7/16" x 1"	4
47	C 28289	KEY - 3/16" x .97" (pump shaft)	1
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

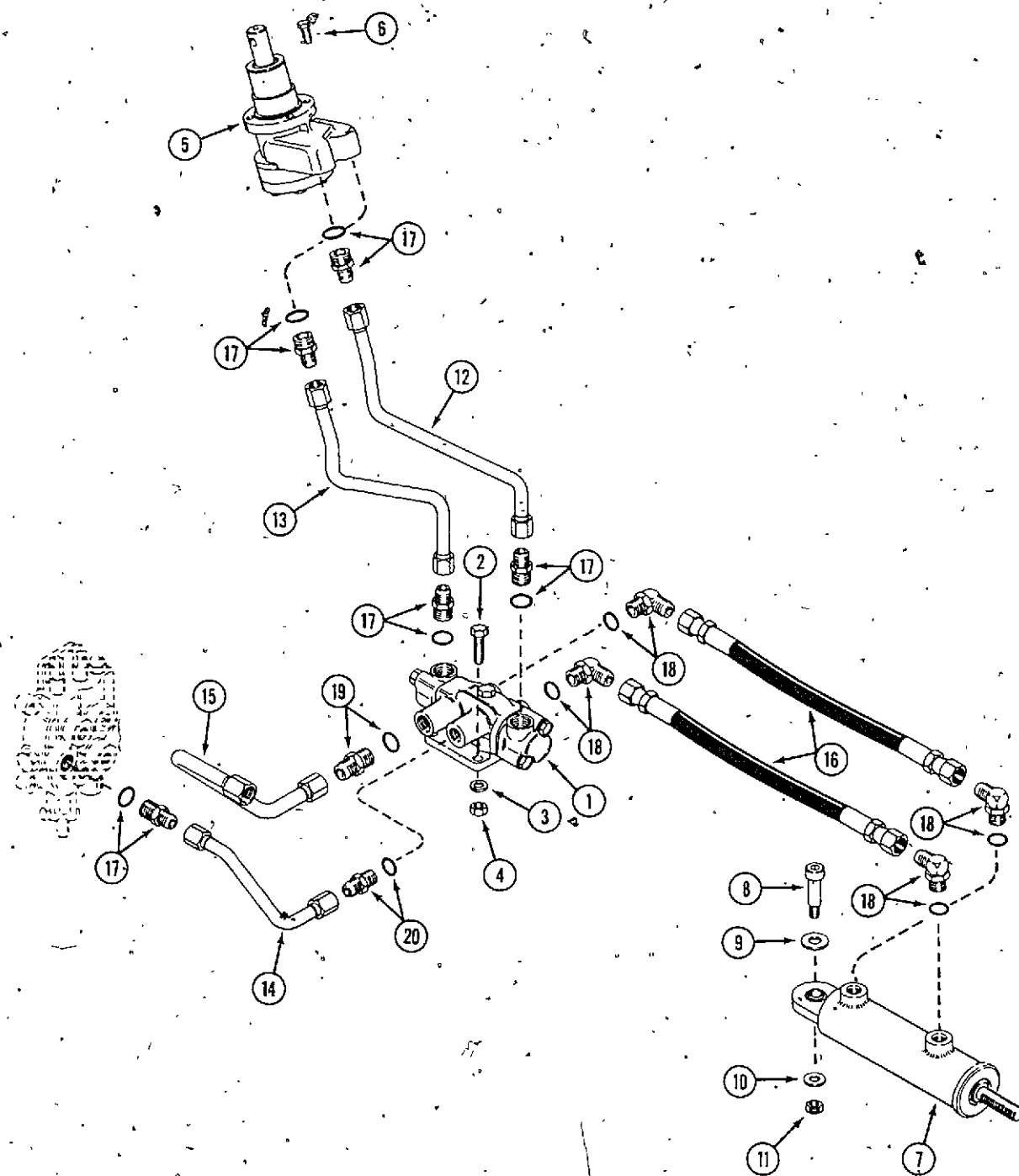
648BH-14076822



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	GROMMET - tower	2

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

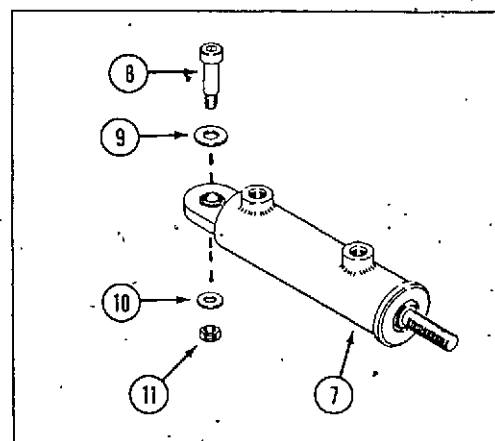
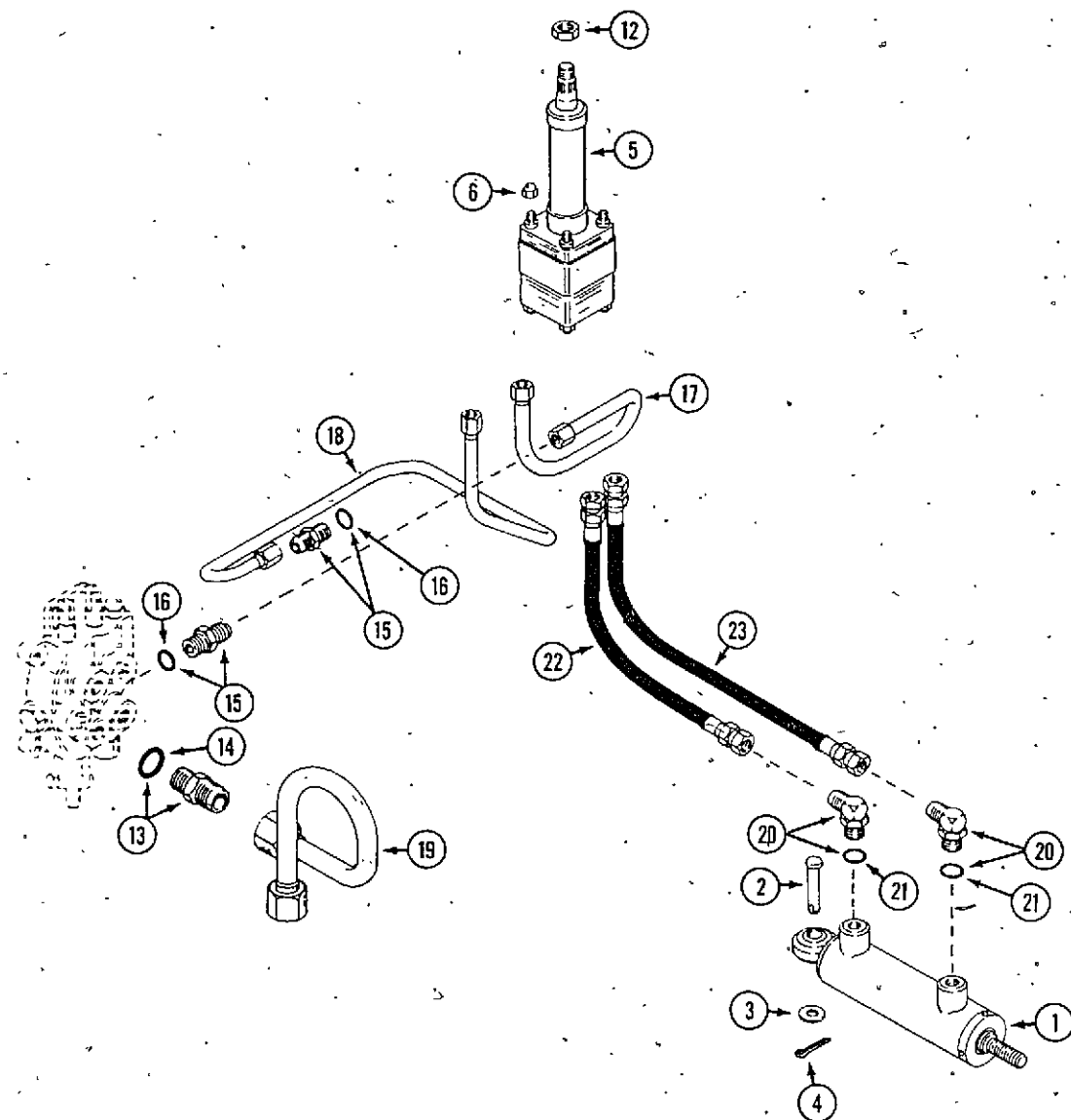


MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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

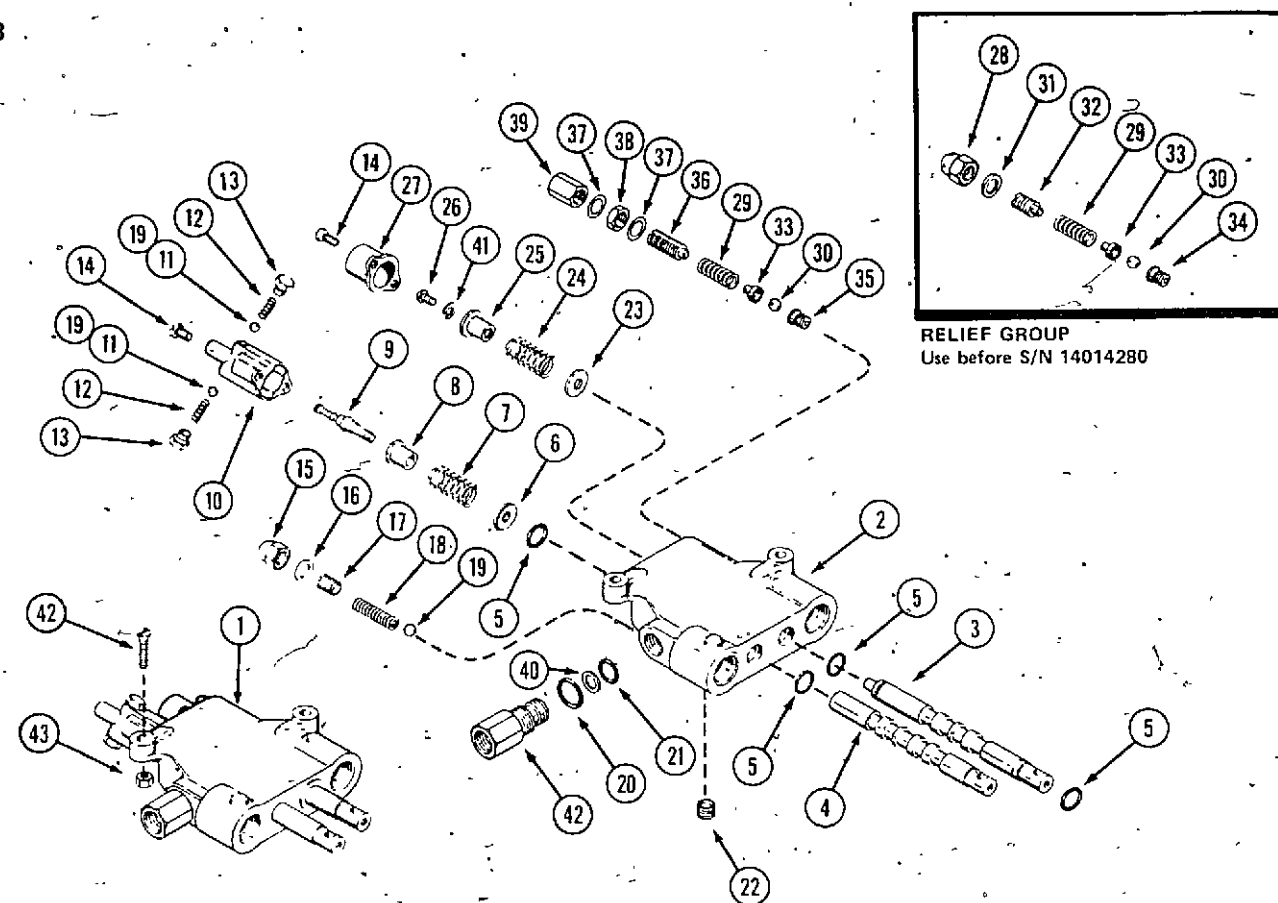
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

HYDRAULIC SYSTEM (POWER STEERING)

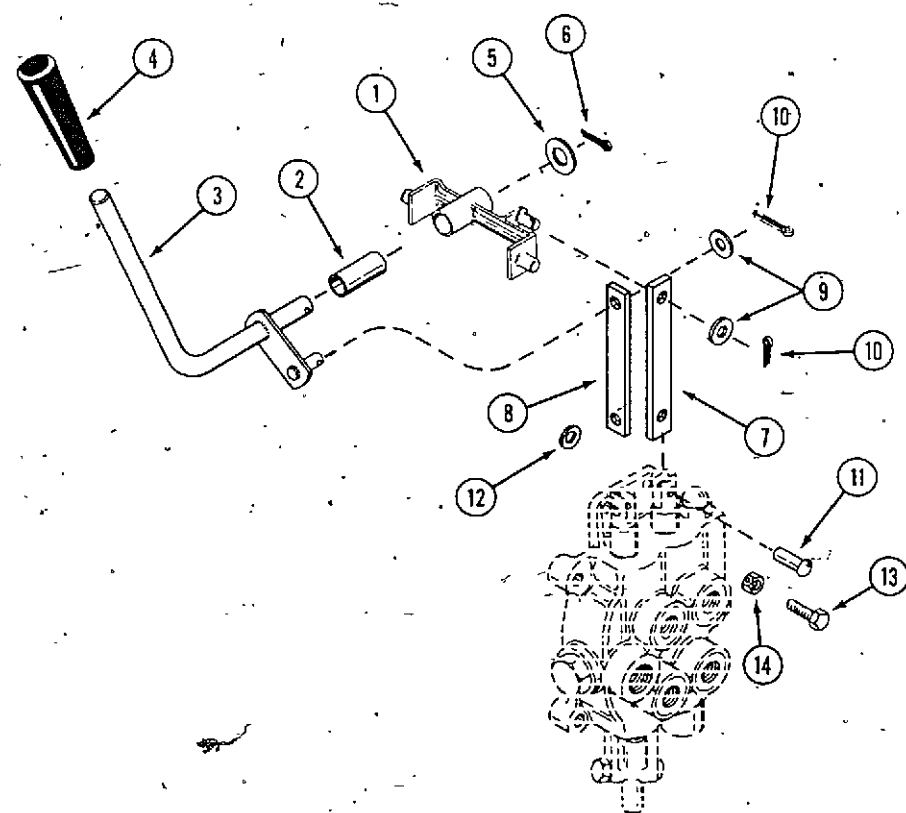
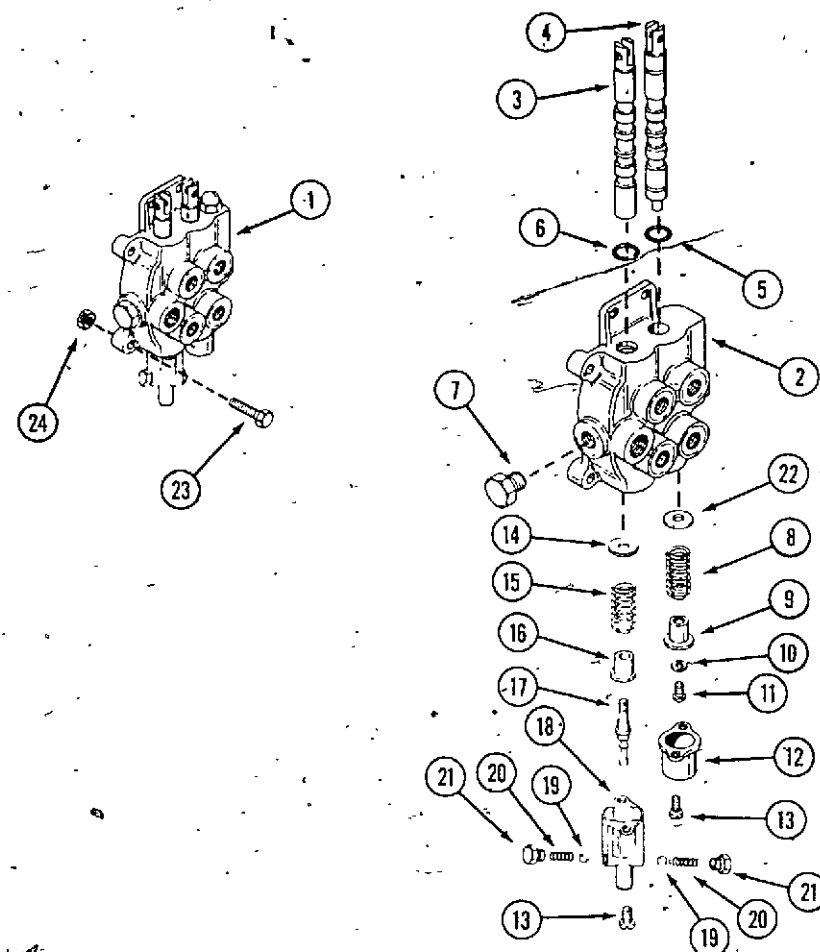
(Use S/N 14076821 and after)

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)

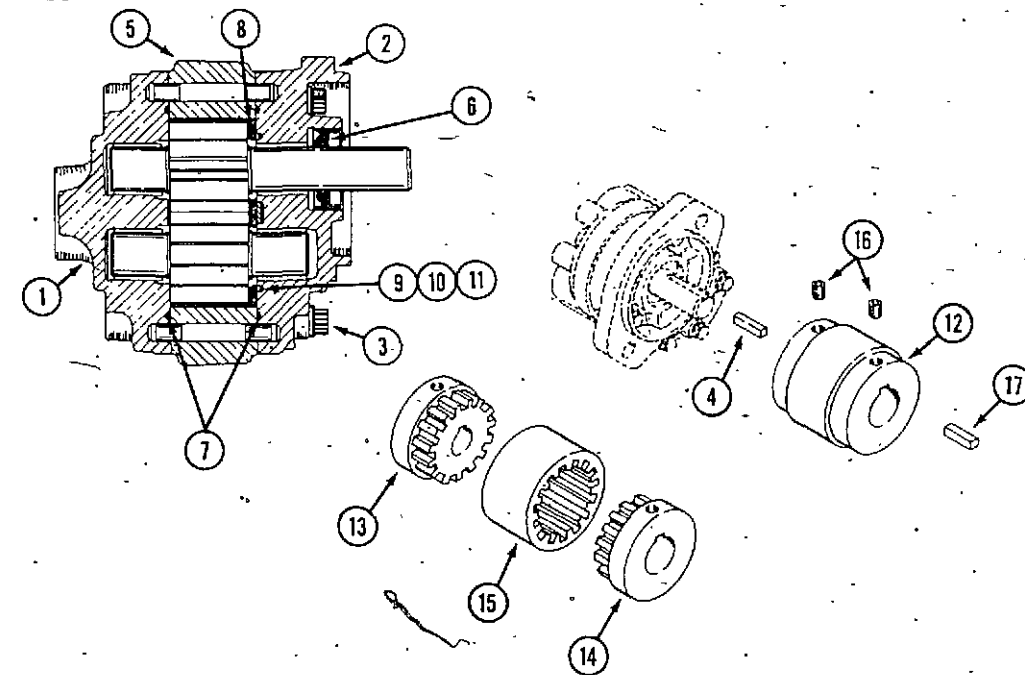
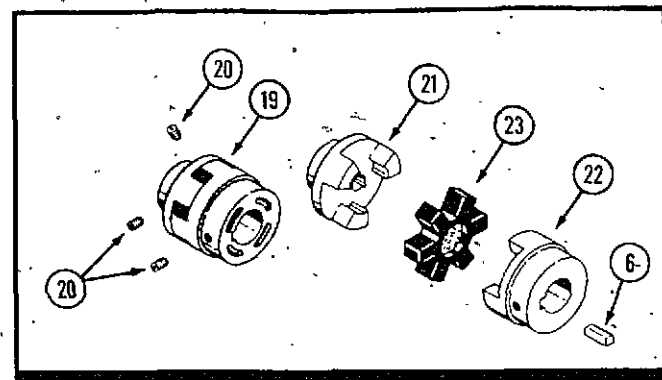
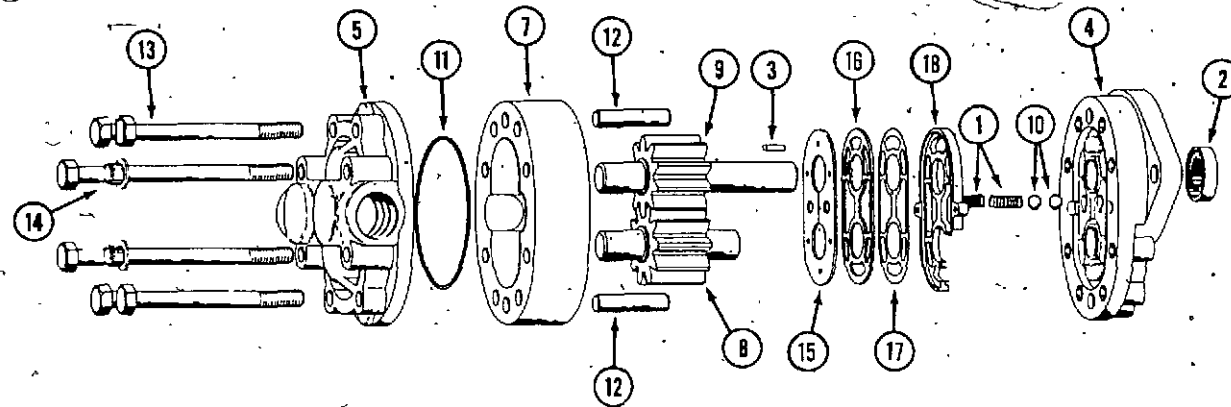
REF.	PART NO.	DESCRIPTION	REQ'D
1	C 18179	VALVE - bucket control	1
2	NSS	BODY - valve (order C 18179 valve)	1
3	NSS	SPOOL - valve (order C 18179 valve)	1
4	NSS	SPOOL - valve (order C 18179 valve)	1
5	C 28989	SEAL - "O" ring, spool	2
6	C 28856	SEAL - "O" ring, spool	2
7	221- 843	PLUG - 3/8"	1
8	C 26431	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)



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

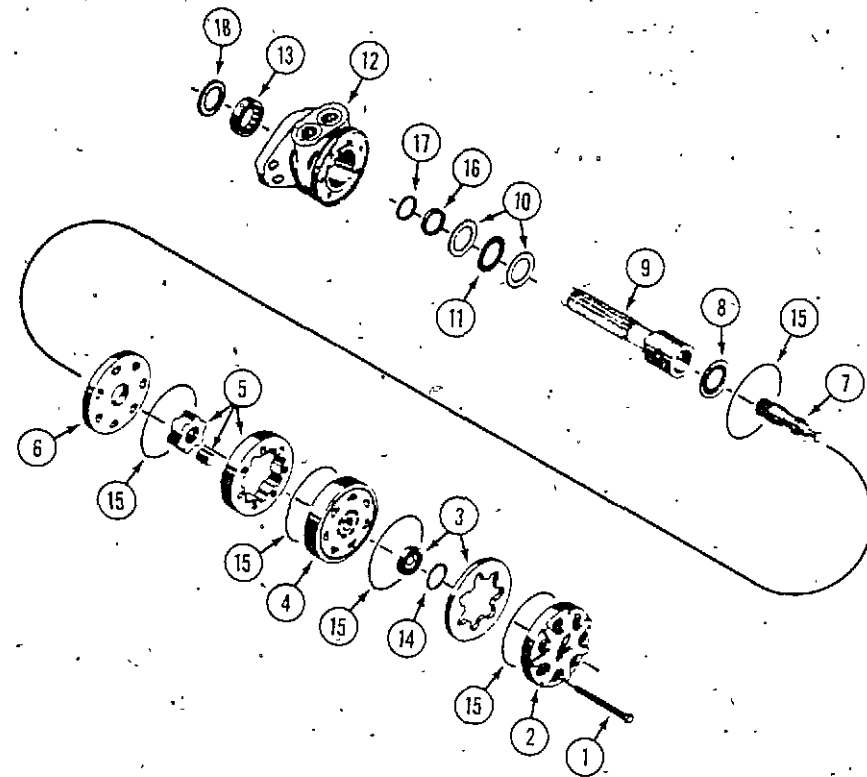
HYDRAULIC PUMP AND COUPLING

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

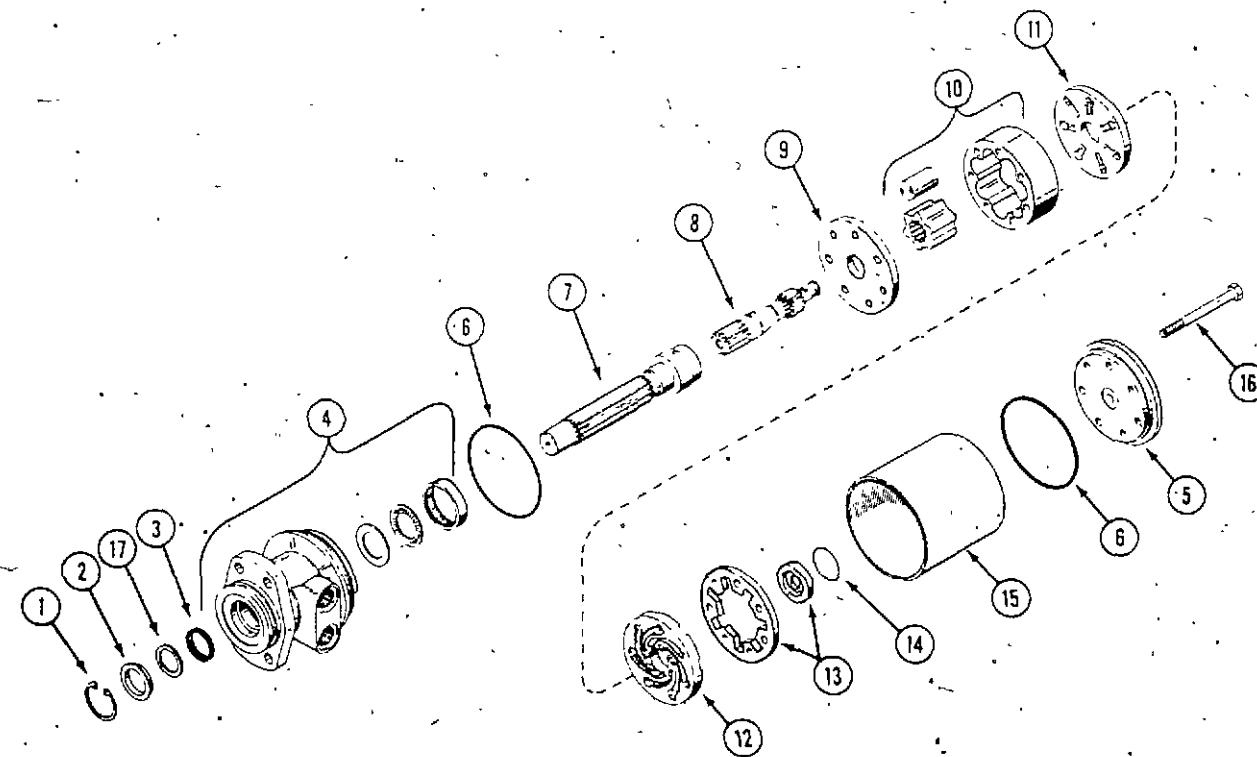
	C 28370	PUMP - hydraulic	1
1	C 28381	COVER - rear	1
2	C 28382	COVER - front	1
3	166- 31	BOLT	8
4	C 28289	KEY - square 3/16" x .97 (pump shaft)	1
5	C 30390	BODY - pump	1
	C 28384	KIT - seal	1
6	C 28380	SEAL - shaft	1
7	C 28383	"O" RING - body seal	2
8	NSS	PLATE - wear (put bronze side towards gears)	1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

HYDRAULIC DRIVE MOTOR

(Use S/N 14114835 and after 648 only)

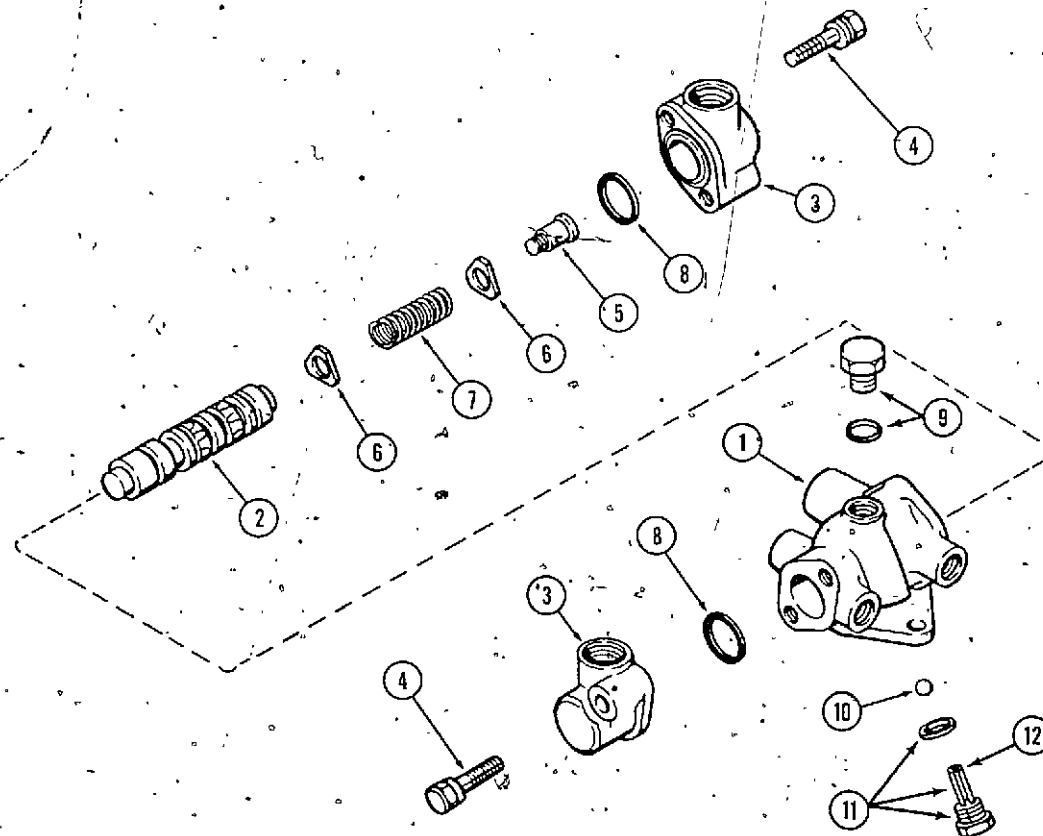
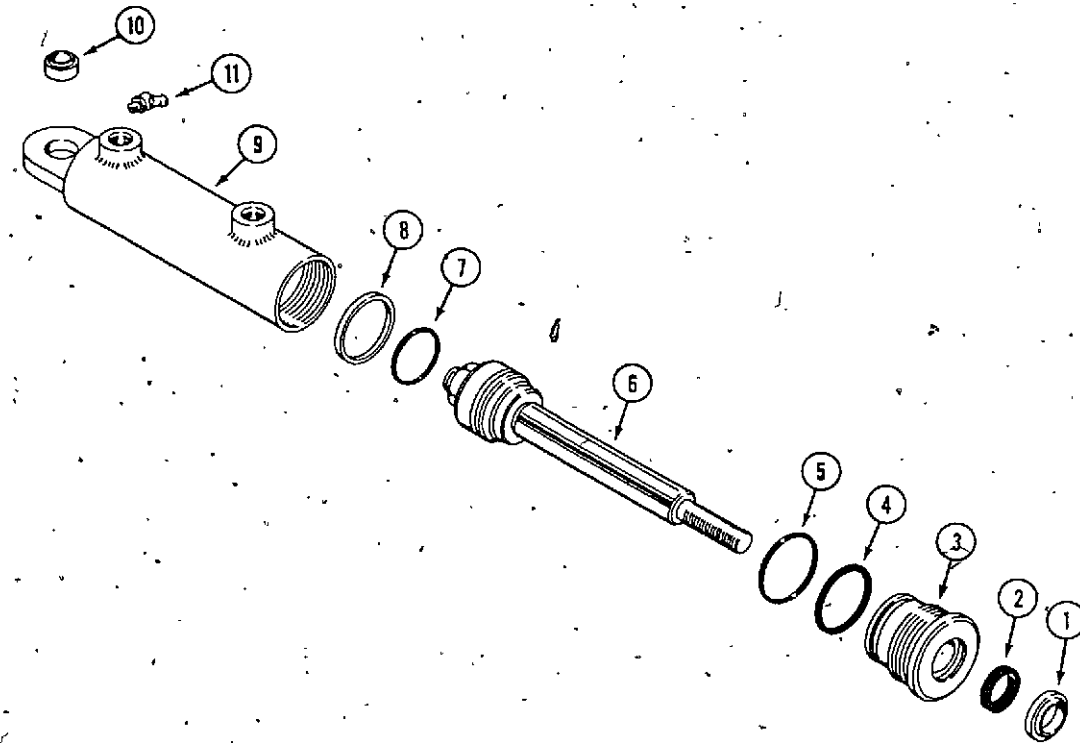


REF.	PART NO.	DESCRIPTION	REQ'D
1	C 30940	MOTOR - hydraulic	1
2	C 31327	BOLT - 3/8" - 24 x 4-5/8"	7
3	C 31309	COVER - end	1
4	C 31310	COMMUTATOR AND RING SET	1
5	C 31311	MANIFOLD	1
6	C 31313	ROTOR ASSEMBLY	1
7	C 31314	PLATE - wear	1
8	C 31316	LINK - drive	1
9	C 31317	BEARING - thrust	1
10	C 31318	SHAFT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

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

(Use before S/N 14114835 on 648)

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

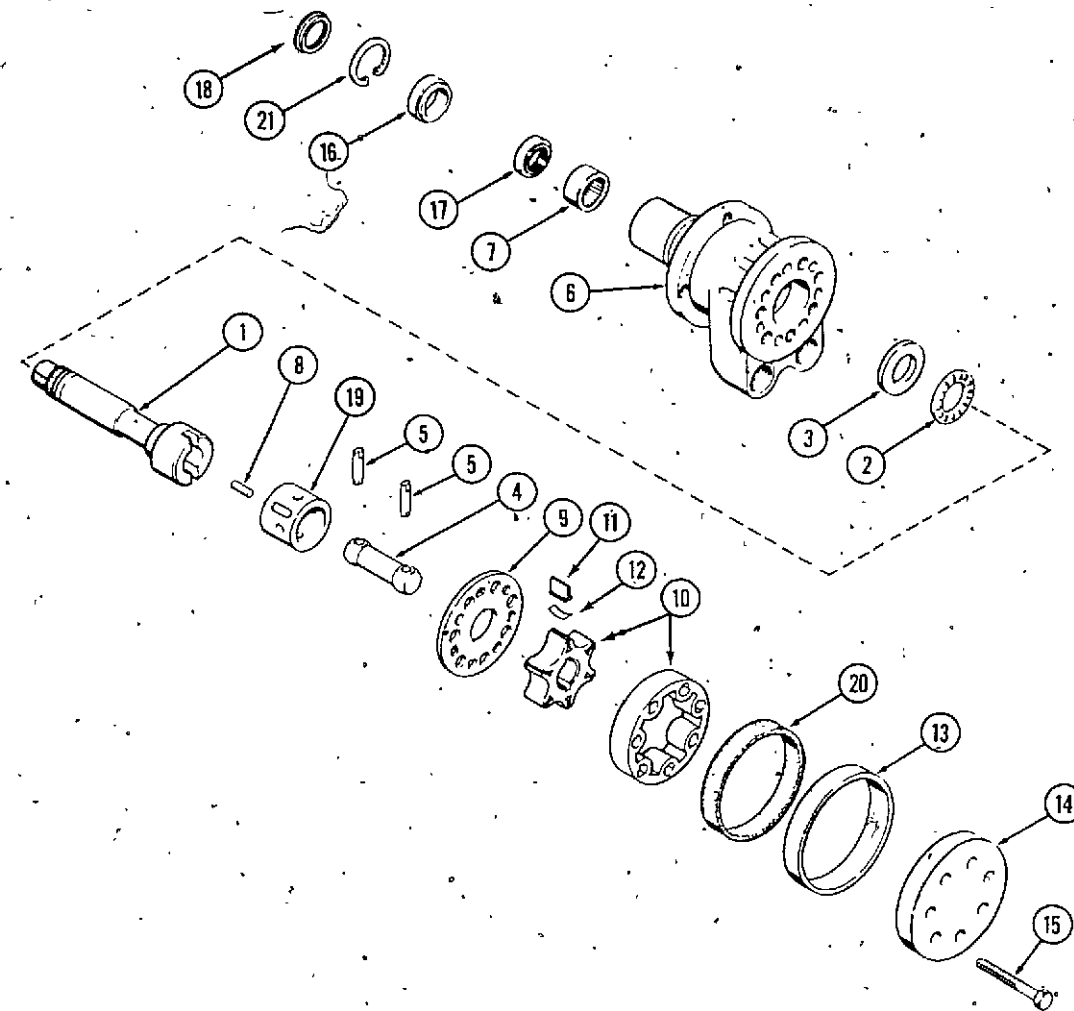
(Use before S/N 14076828)

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)

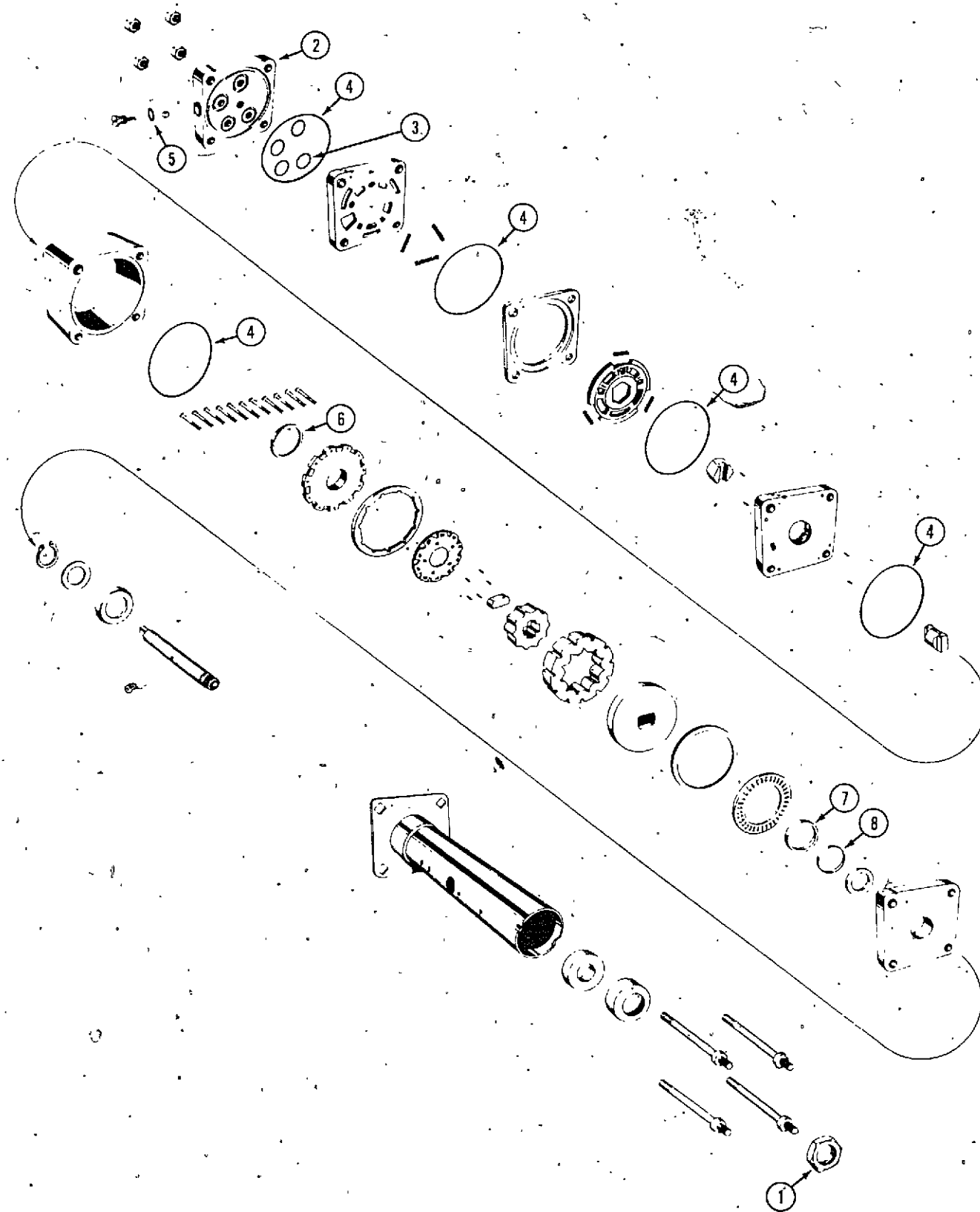
(Use before S/N 14076821)

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

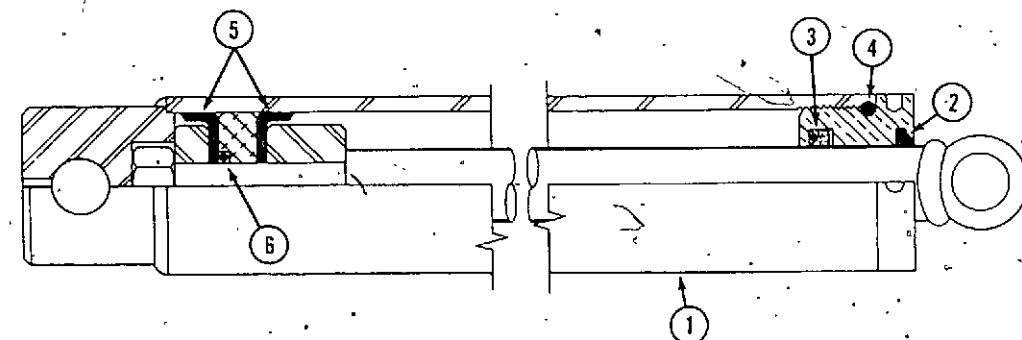
(use before S/N 14063829)

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

CYLINDER - LIFT ARM

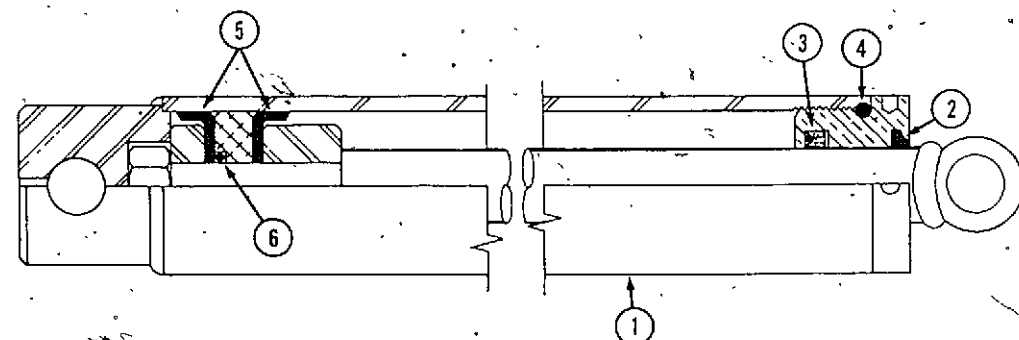
(use S/N 14063829 and after)

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

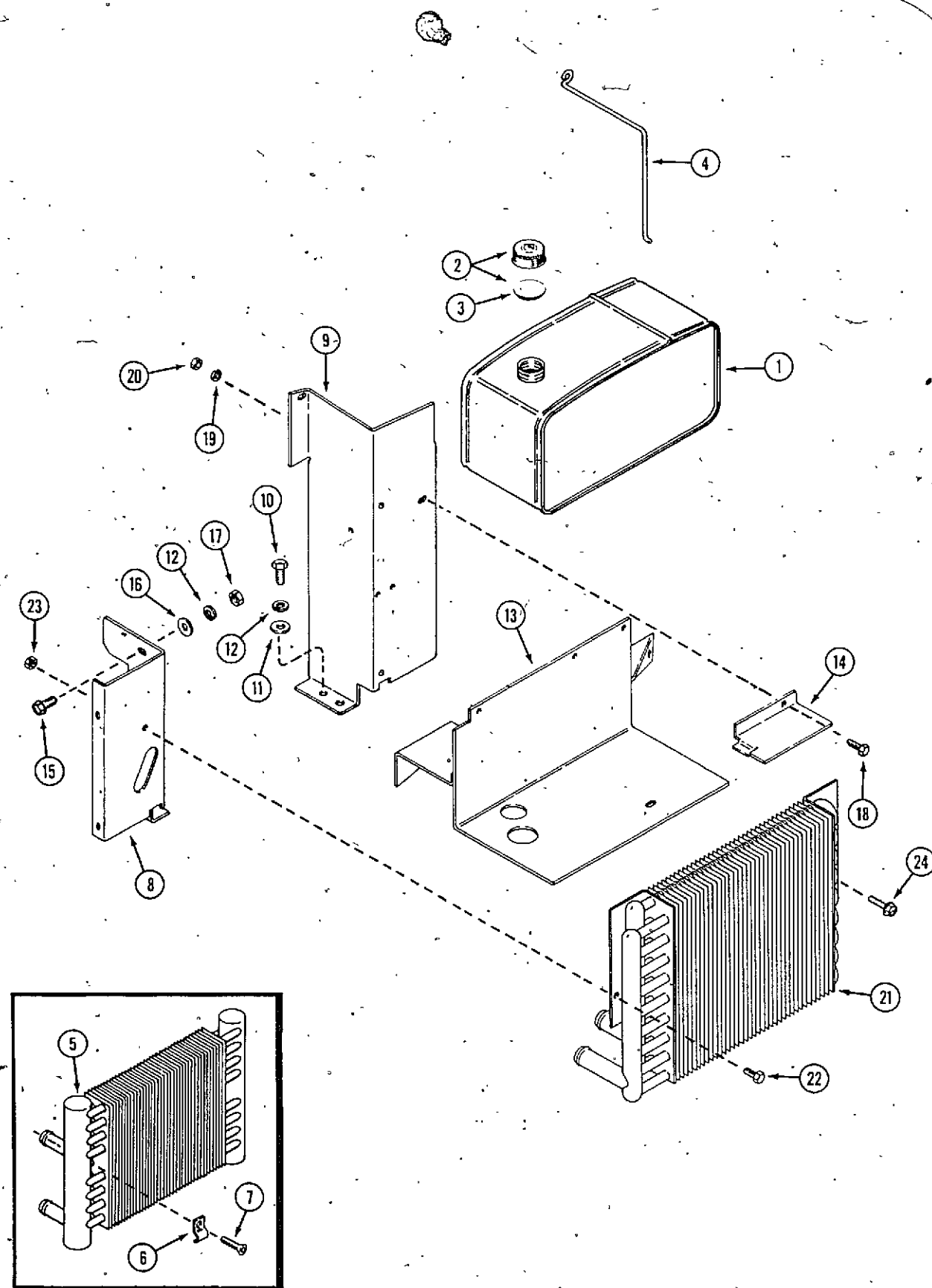
(use S/N 14063831 and after)

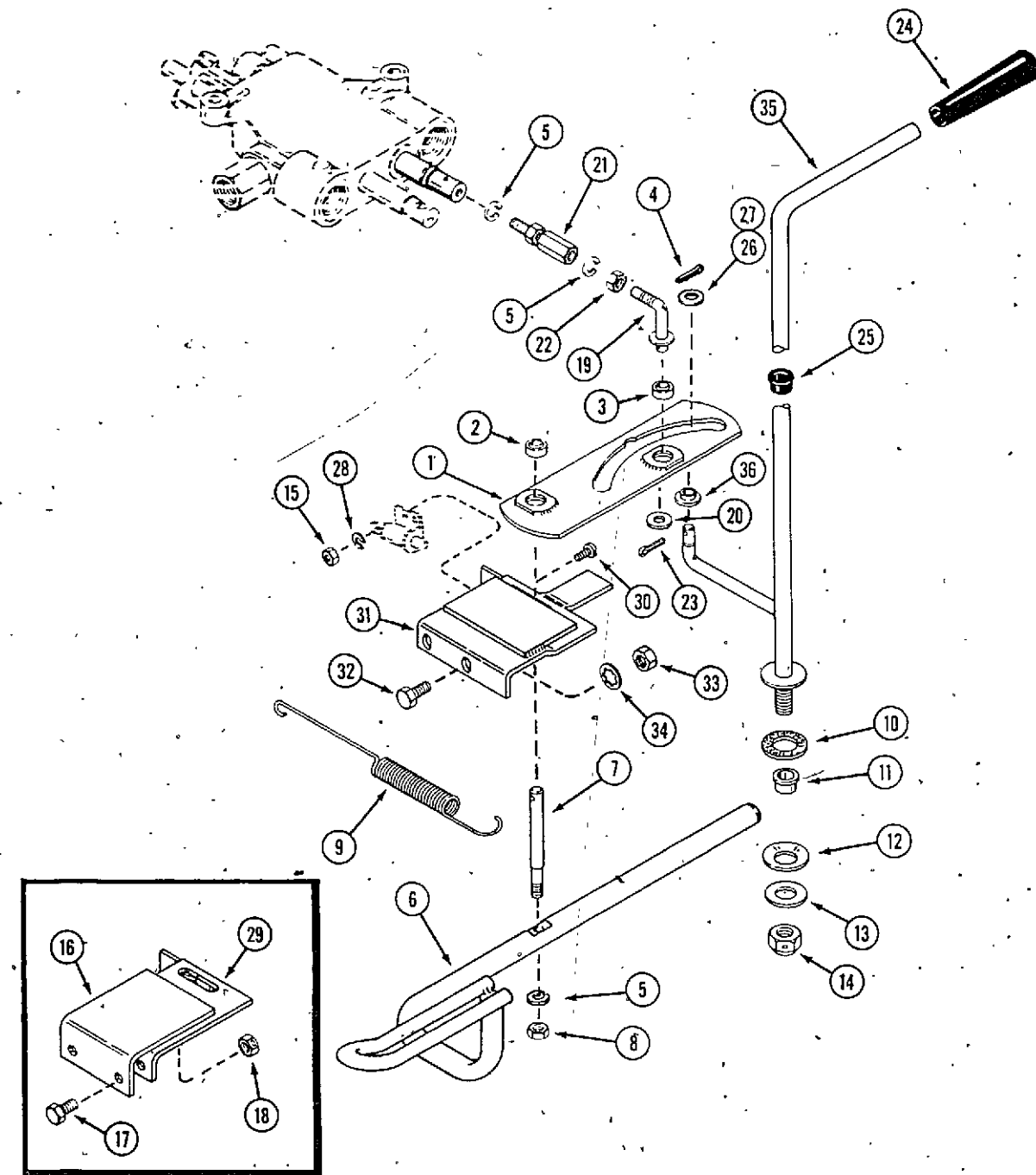
1	C 26432	CYLINDER - bucket	1
	C 26444	KIT - seal	1
2	NSS	SEAL - wiper	1
3	NSS	"O" RING AND SEAL - rod	1
4	NSS	"O" RING - body	1
5	NSS	SEAL - piston	2
6	NSS	"O" RING - piston	1



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





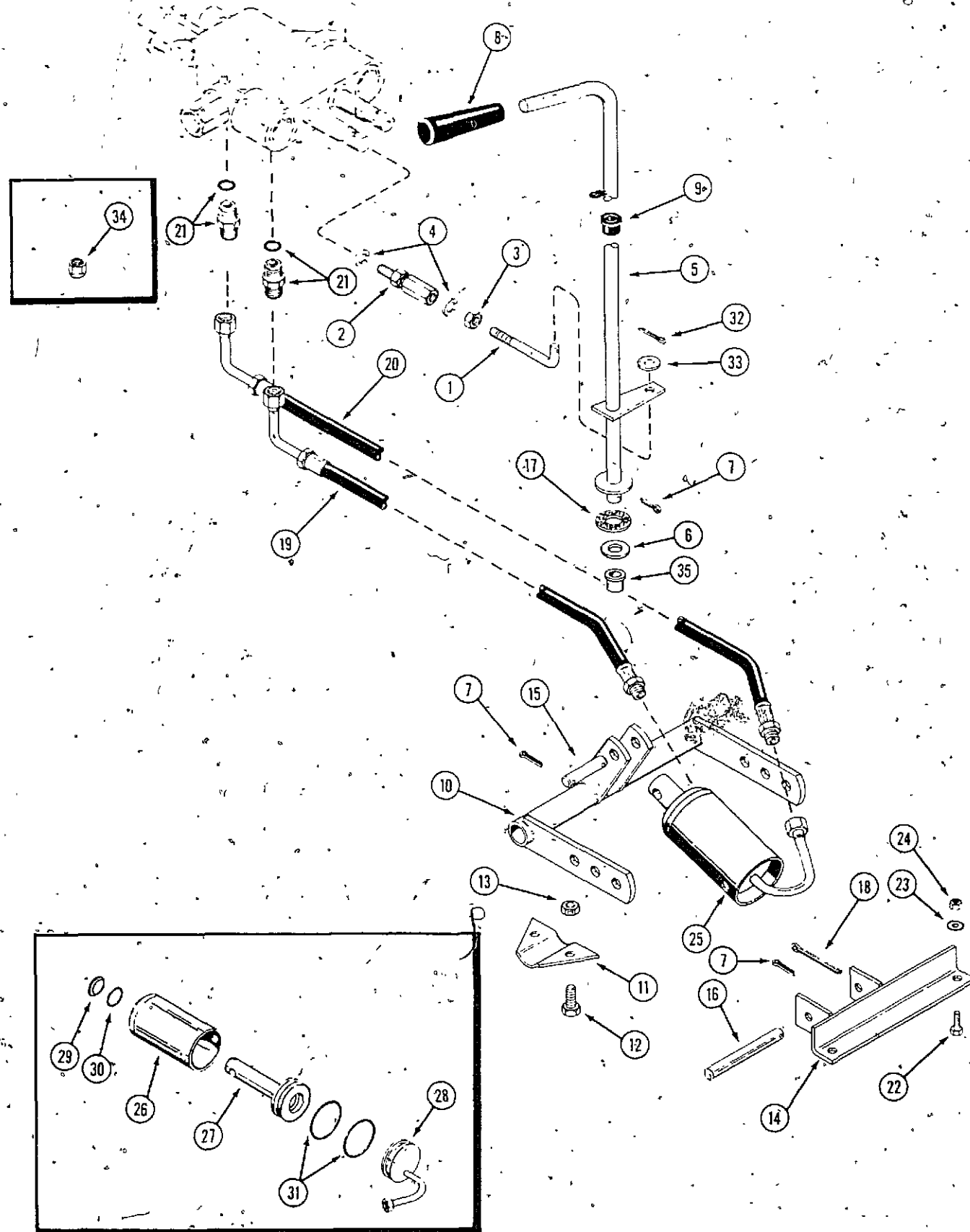
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

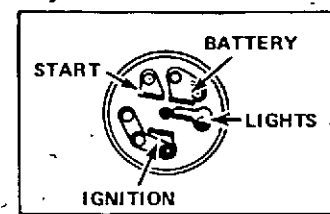
TRAVEL CONTROL LINKAGE

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

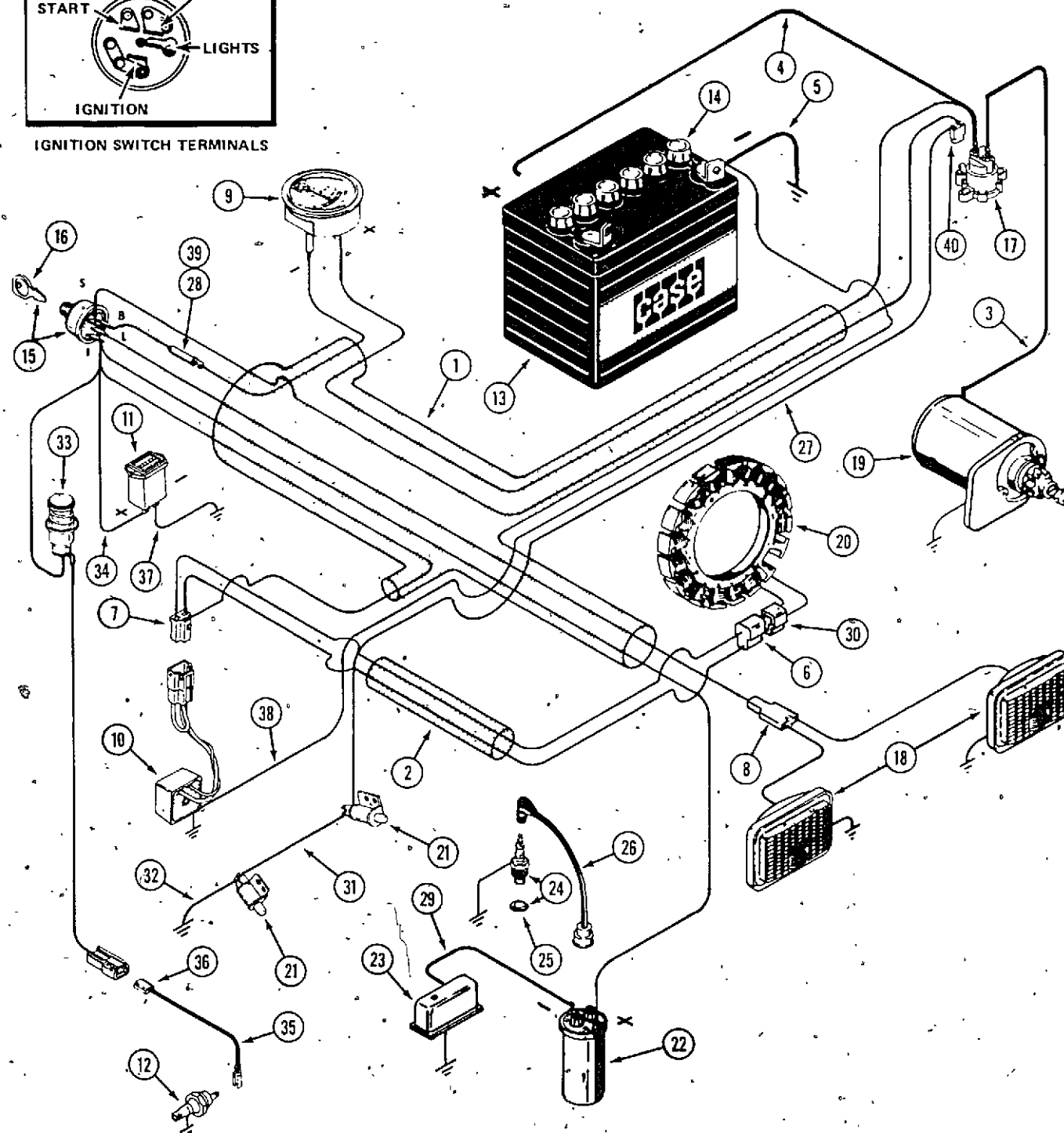
HYDRAULIC LIFT (648)

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"	2
33	195- 518	WASHER - 1/4"	1
34	218- 753	CAP - 37° (648BH)	2
35	C 26266	BUSHING - nylon	1





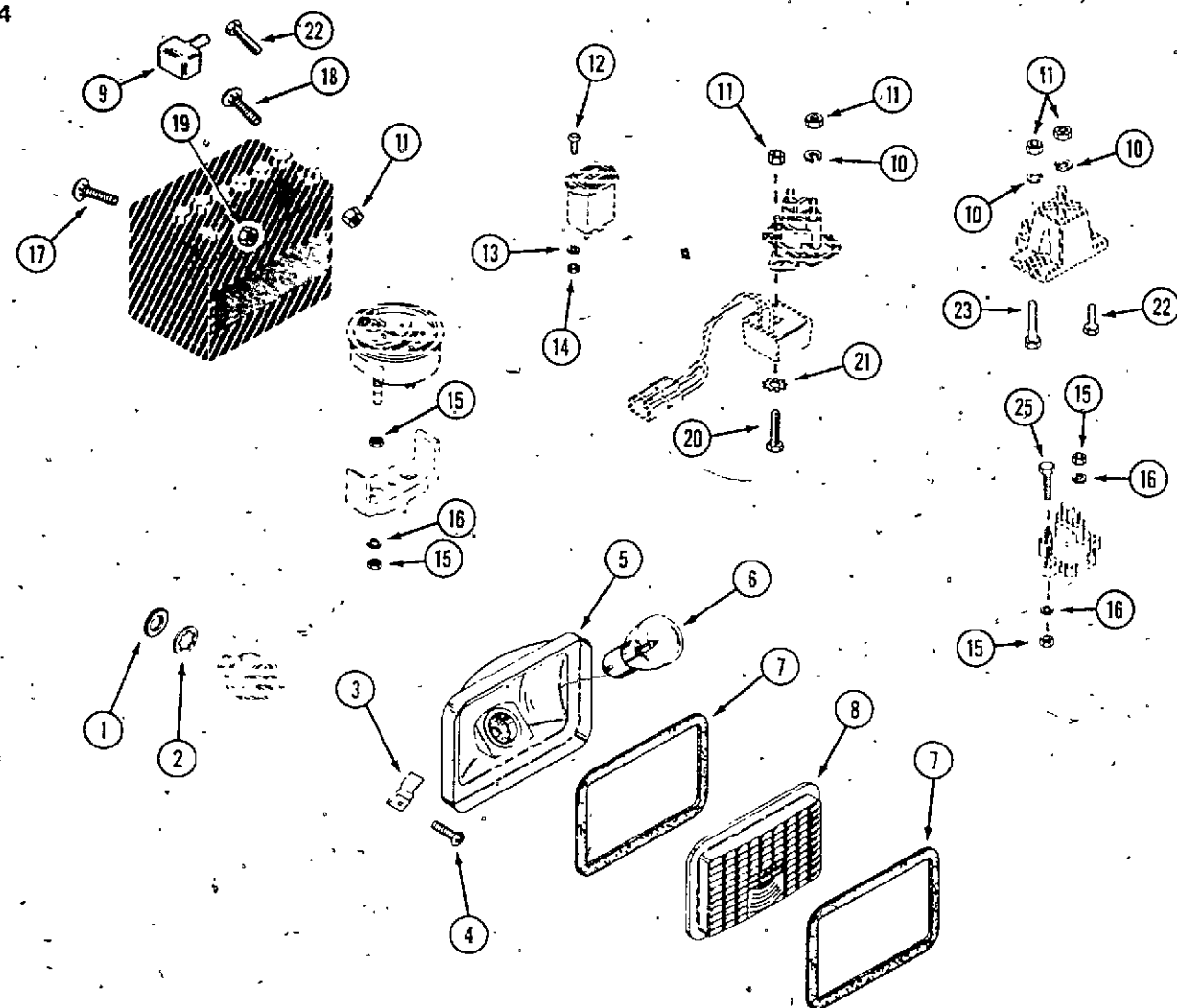
IGNITION SWITCH TERMINALS



MODEL 648 AND 648BH COMPACT WHEEL LOADERS

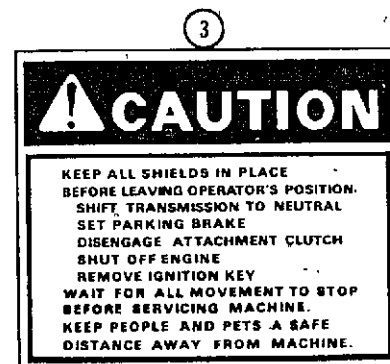
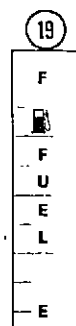
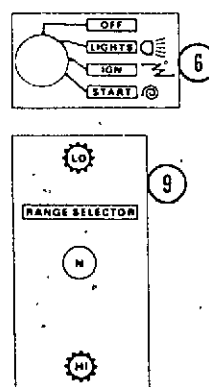
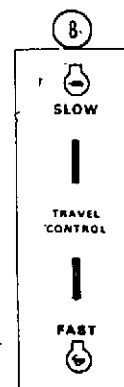
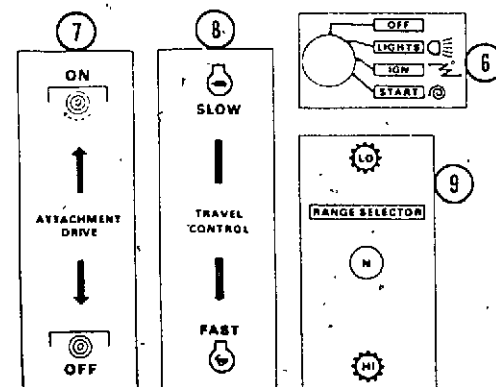
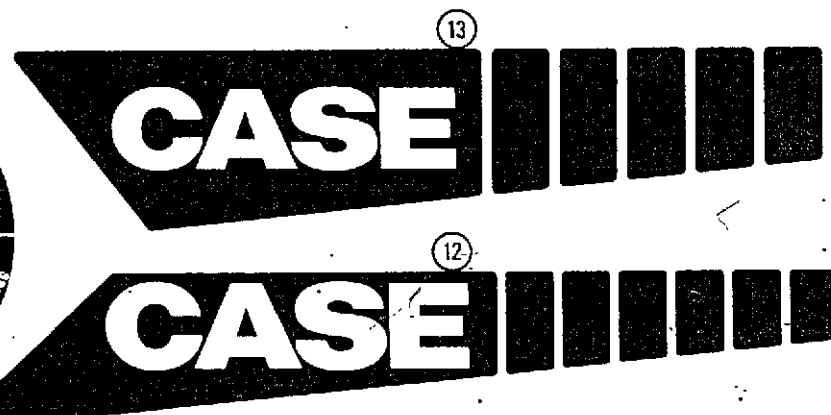
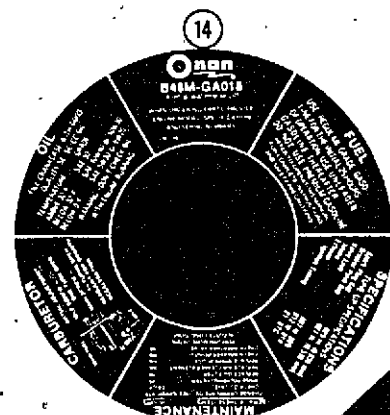
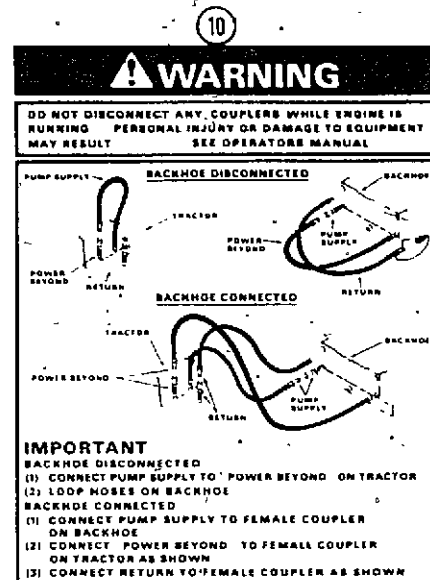
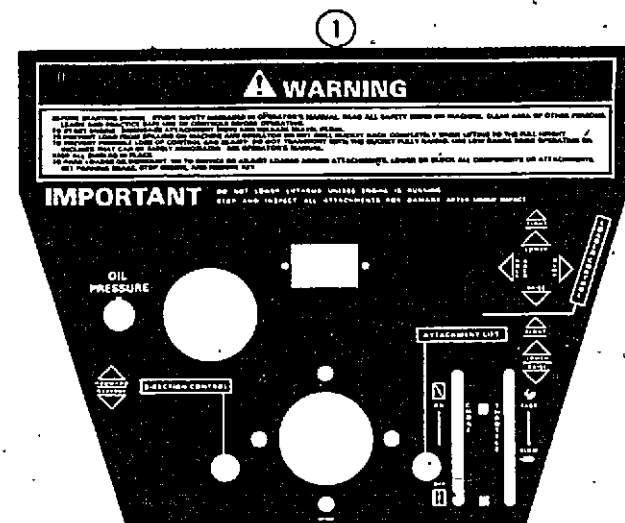
ELECTRICAL SYSTEM

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-	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)

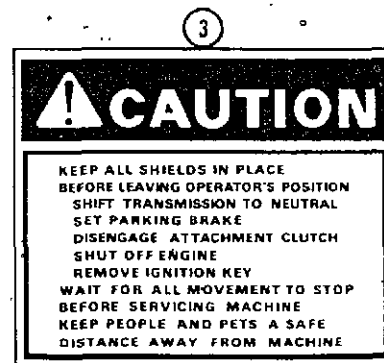
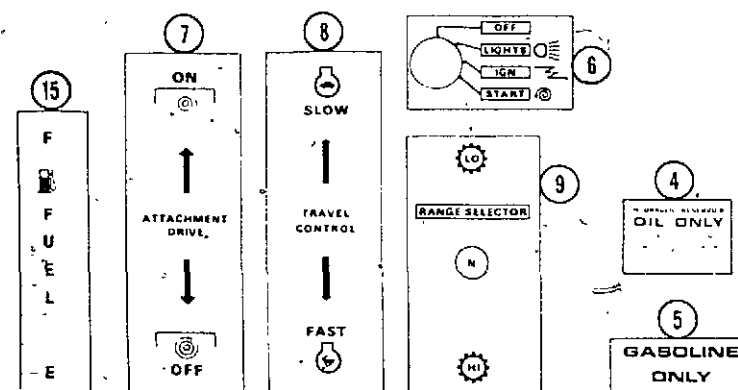
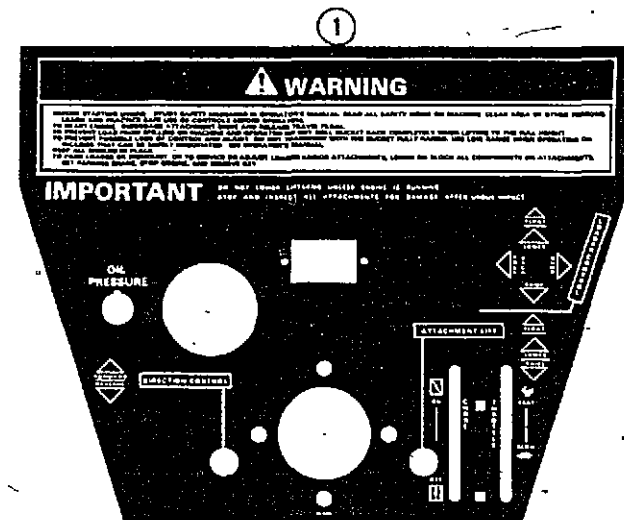
(Use before S/N 14076862)

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

DECALS (English)

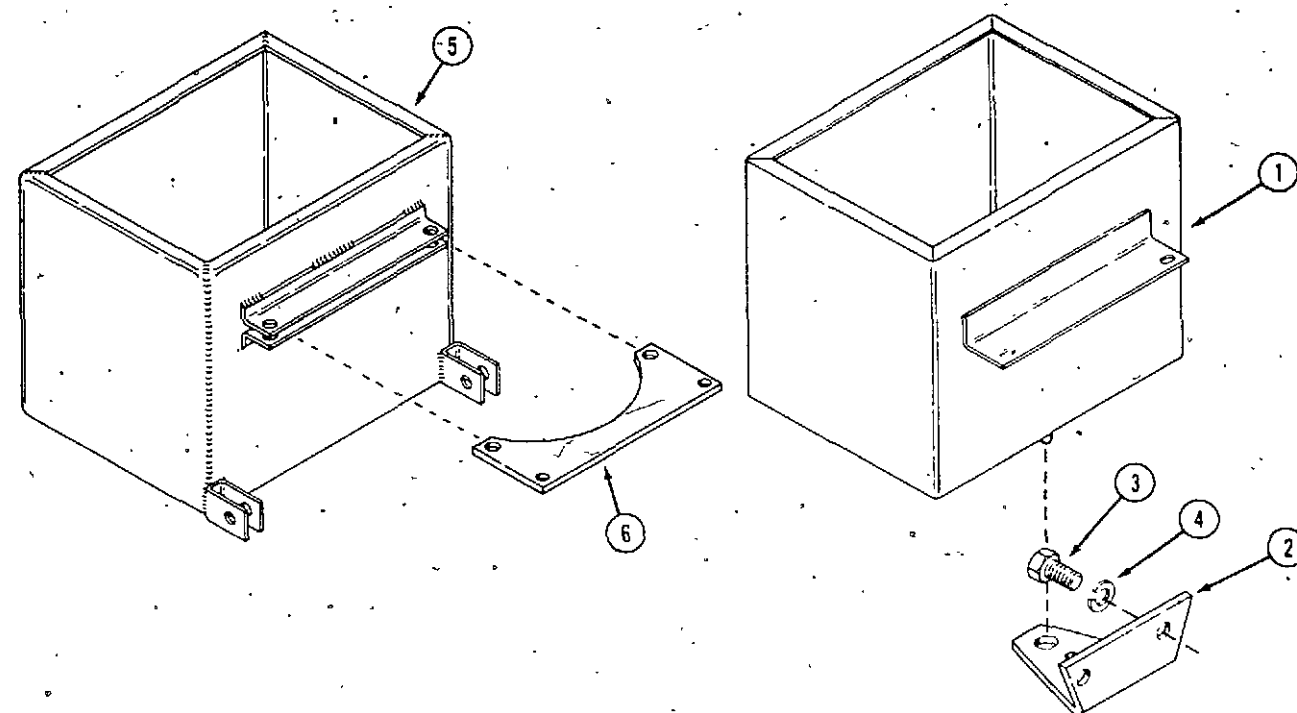
(Use S/N 14076862 and after)

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





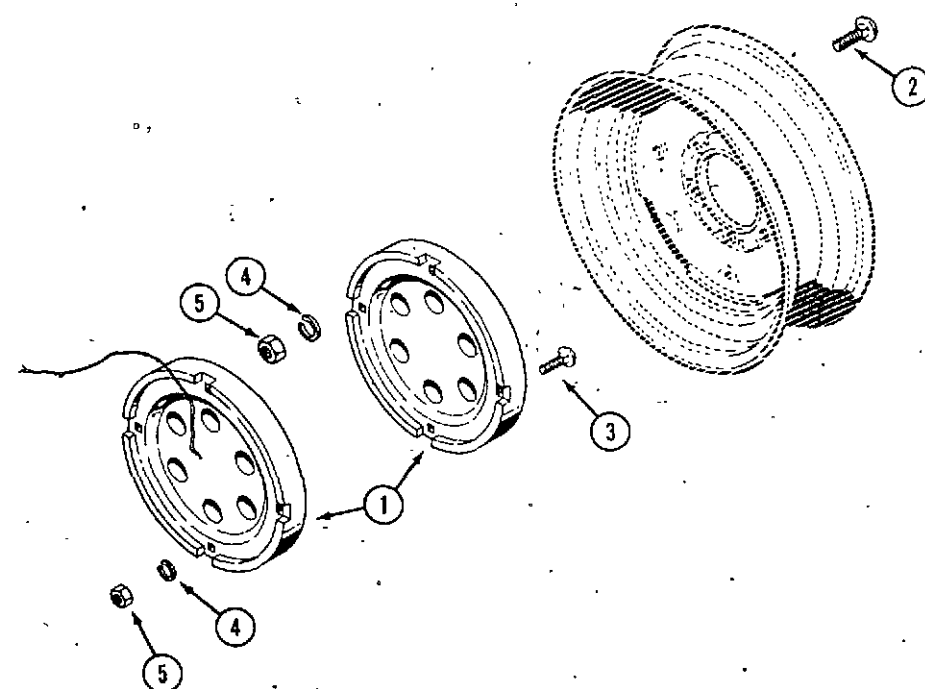
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

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

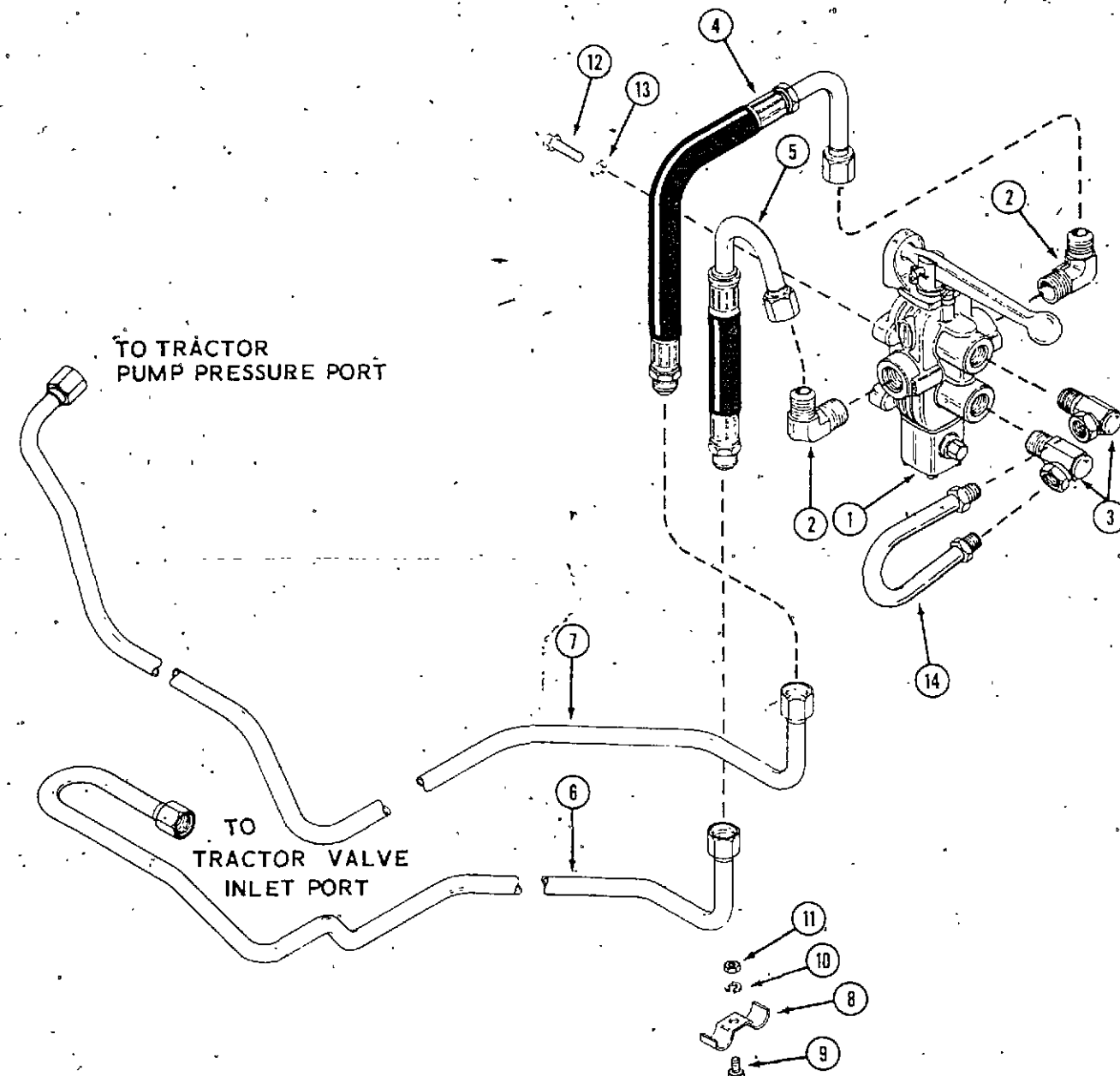
1	NSS	WEIGHT - wheel (Order as machinery item)	4
2	111- 530	BOLT - 1/2" x 2-1/2" NC round head, square neck ZP	4
3	111- 531	BOLT - 1/2" x 2-3/4" NC round head, square neck ZP	4
4	92- 8	LOCK WASHER - 1/2"	8
5	129- 105	NUT - 1/2" NC hex	8

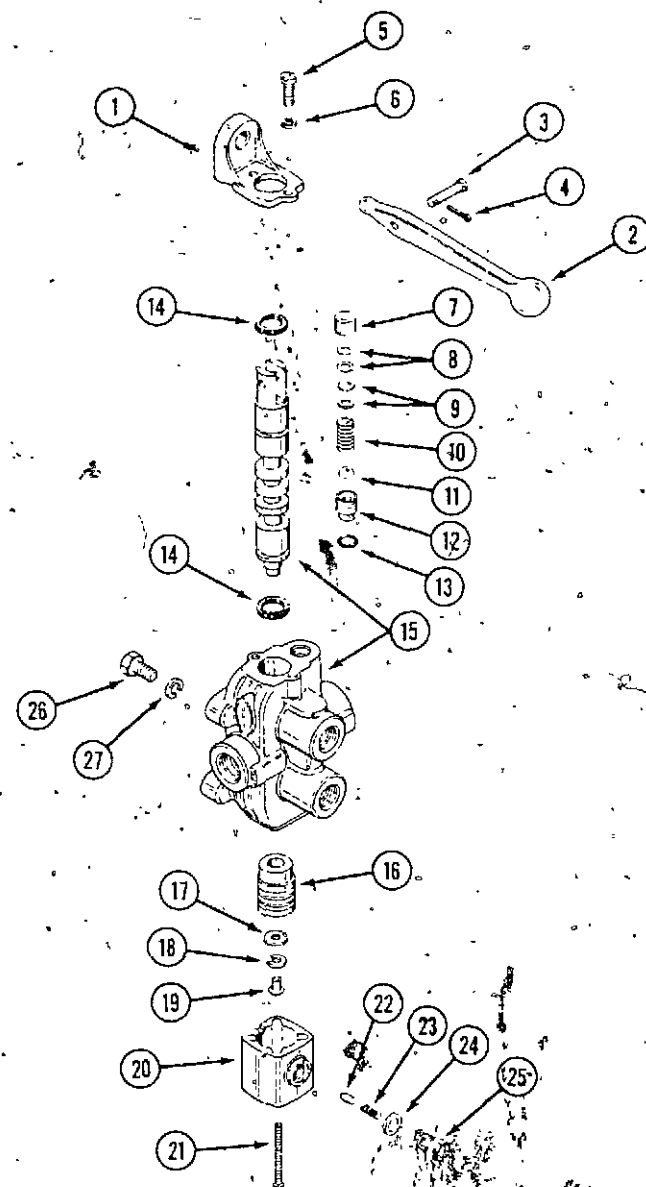


MODEL LT16 HYDRAULIC PTO KIT

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

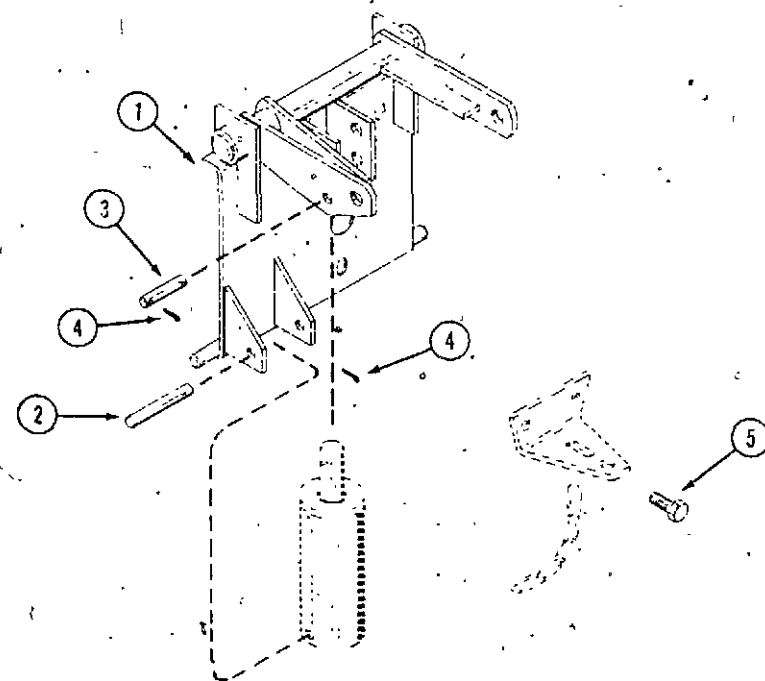
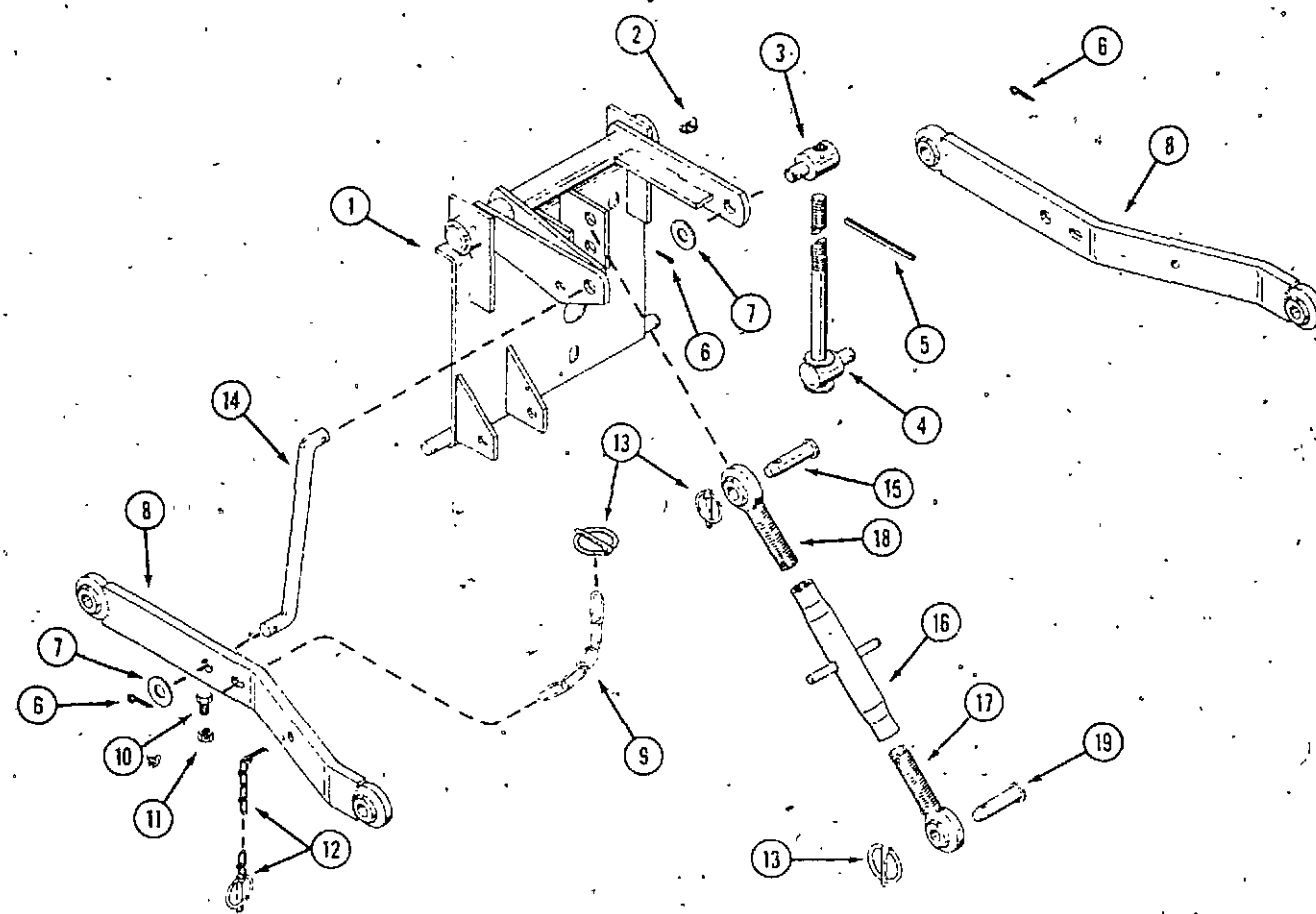
ILLUSTRATED AS VIEWED FROM
LEFT REAR OF TRACTOR





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
16	C 14712	LINK ASSEMBLY	1
17	C 14703	CENTER TUBE ASSEMBLY	1
18	C 14709	BALL END ASSEMBLY R.H. THREAD	1
19	C 14710	BALL END ASSEMBLY L.H. THREAD	1
20	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

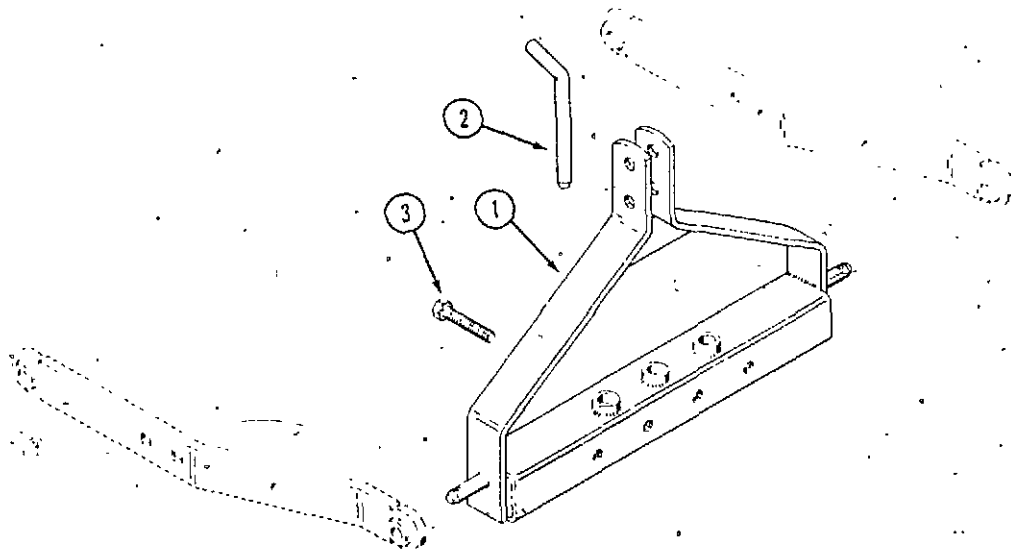
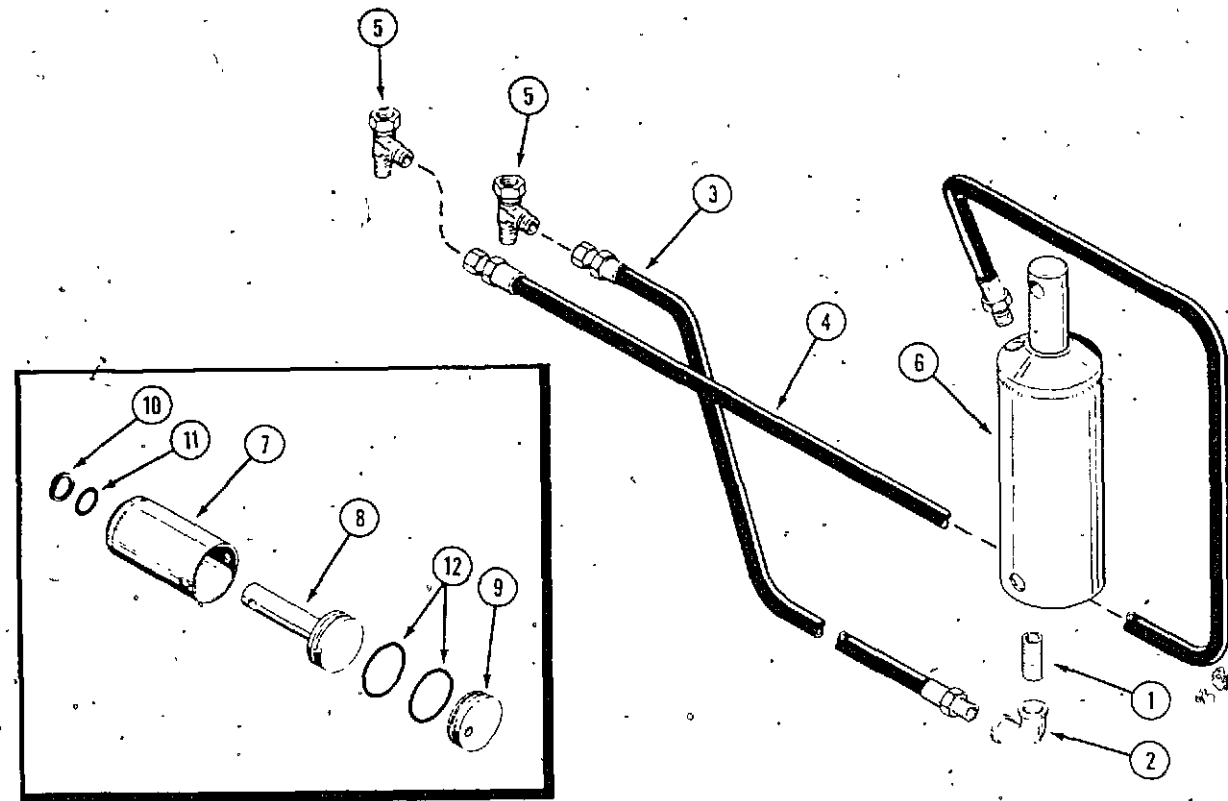
MODEL LT26 THREE POINT HITCH (HYDRAULIC CONNECTIONS AND COMPONENTS)

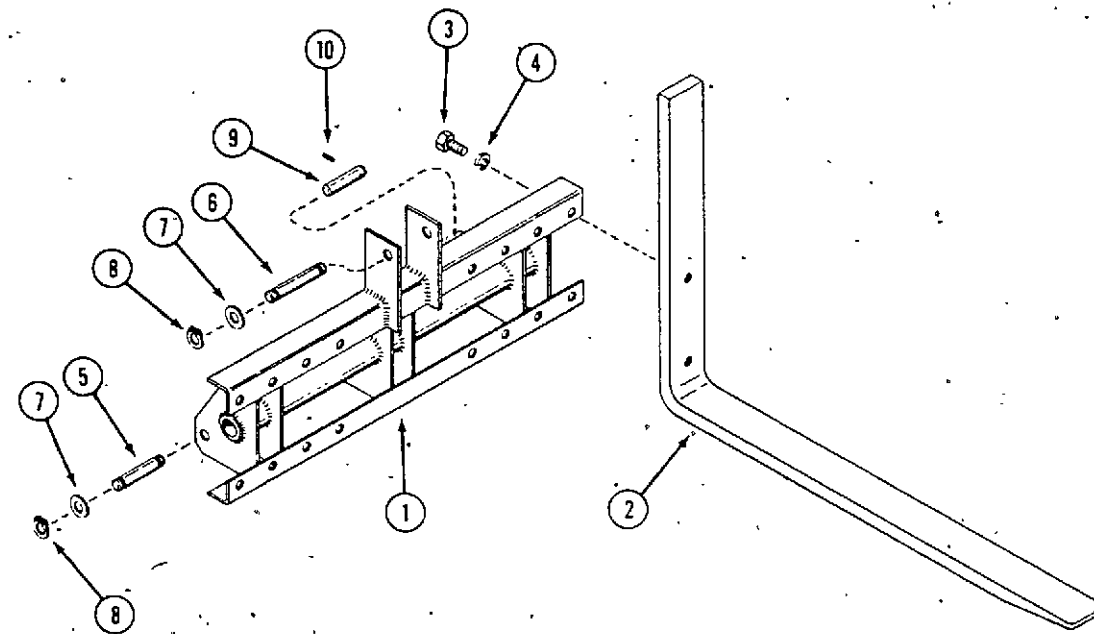
REF.	PART NO.	DESCRIPTION	REQ'D
1	221- 1139	NIPPLE - 1/4" x 3"	1
2	221- 1375	ELBOW - 90°	1
3	C- 17188	HOSE - hydraulic, short	1
4	C- 17189	HOSE - hydraulic, long	1
5	218- 5479	FITTING - tee swivel	2
6	NSS	CYLINDER ASSEMBLY - (use C26494)	1
7	C 19476*	BODY - cylinder	1
8	C 19469*	ROD AND PISTON ASSEMBLY	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





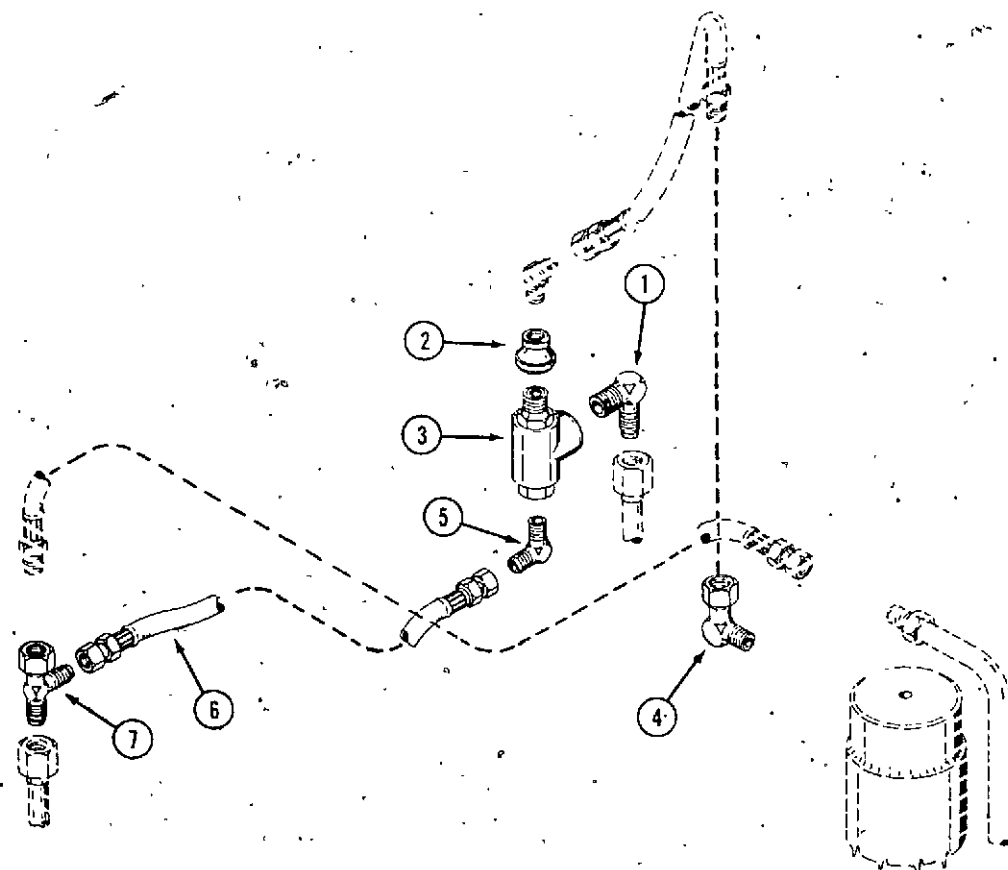
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

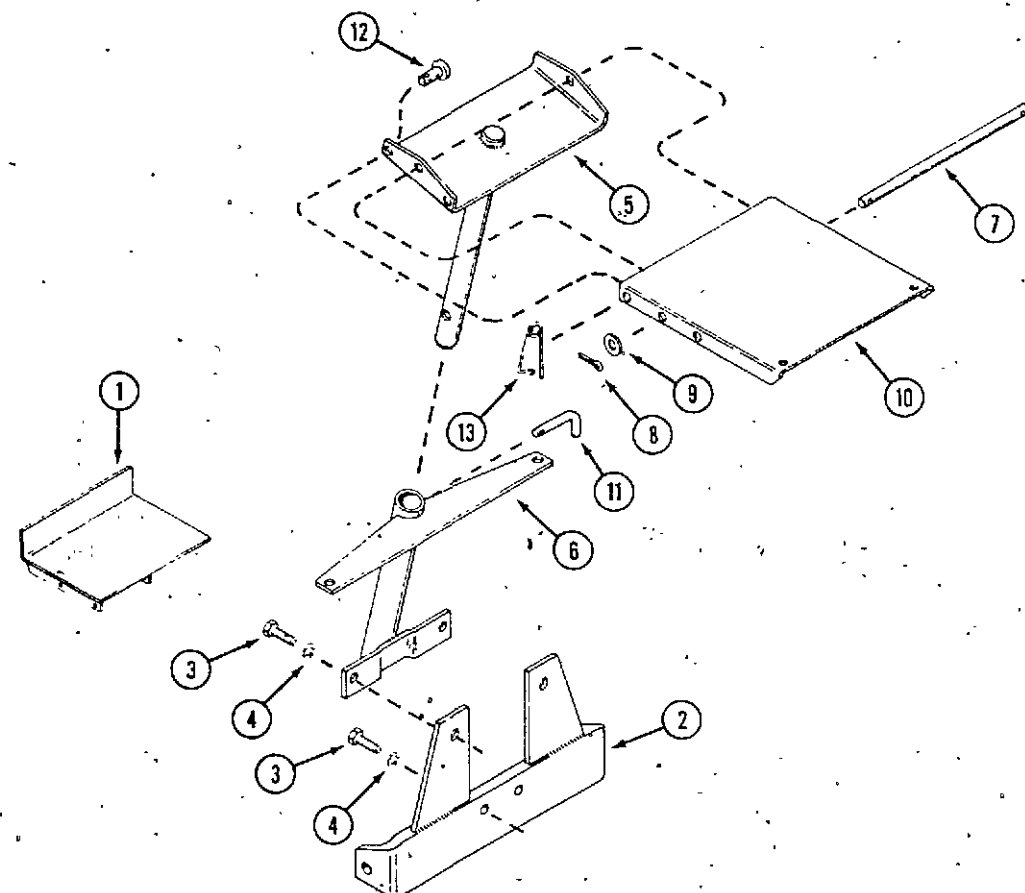
LL20 FORK LIFT

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





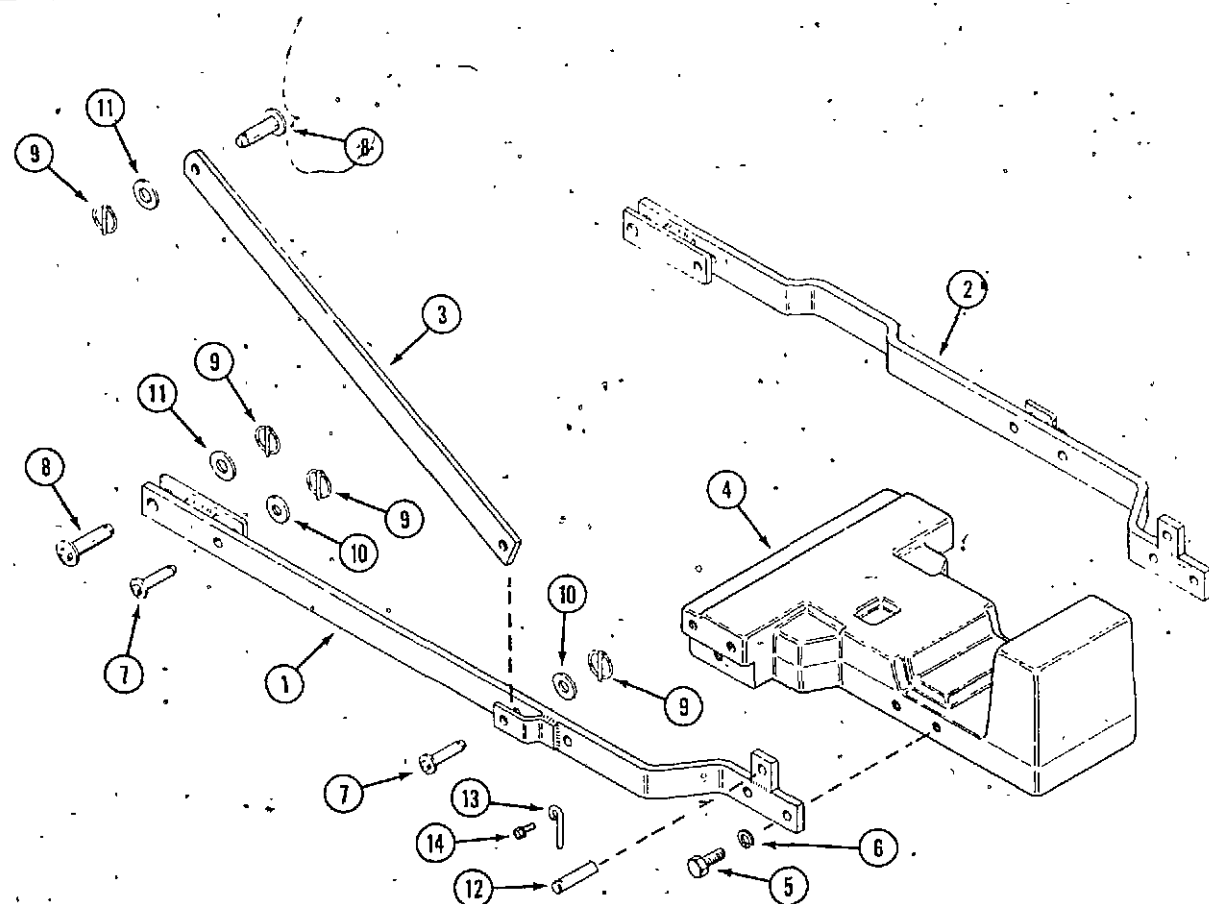
MODEL 648 AND 648BH COMPACT WHEEL LOADERS

BACKHOE SEAT ASSEMBLY - 648BH

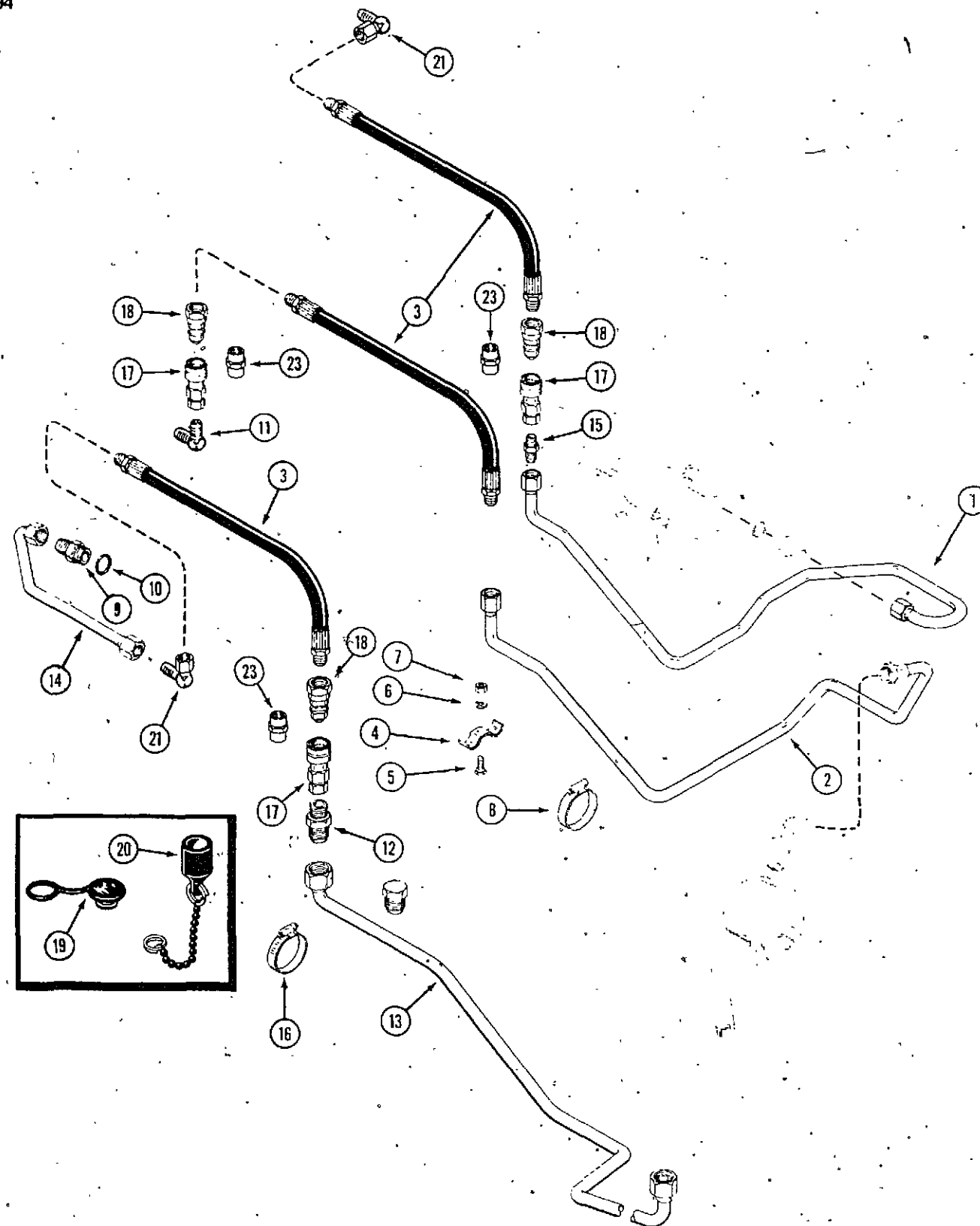
REF.	PART NO.	DESCRIPTION	REQ'D
1	C 24520	PAD - foot rest, L.H.	1
1	C 24519	PAD - foot rest, R.H.	1
2	C 23684	PLATE - mounting, rear	1
3	113- 410	BOLT - 1/2" x 1-1/2" hex	4
4	192- 213	LOCK WASHER - 1/2"	4
5	C 23736	POST ASSEMBLY - seat	1
6	C 23733	TUBE ASSEMBLY - support, post	1
7	C 23737	PIN - pivot	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 - click	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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C11545	25	3	C15389	83	8
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C12975	33	23	C17188	89	3
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