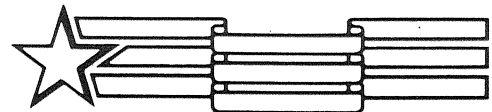
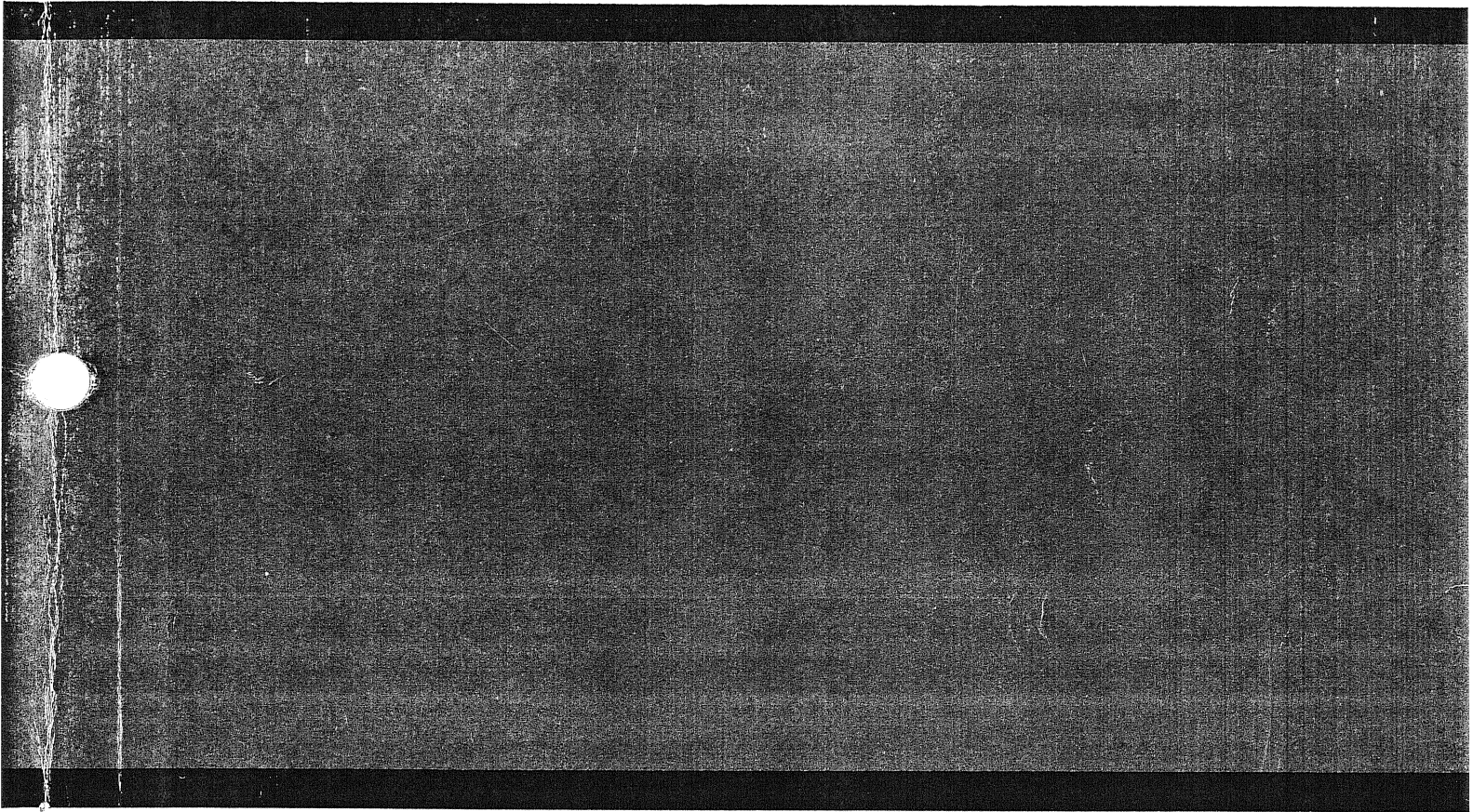


Ingersoll

COMPACT WHEEL LOADERS
MODEL 648 AND 648BH
Parts Catalog 8-1422



QUALITY IN THE AMERICAN TRADITION

Ingersoll Equipment Co., Inc.

Winneconne, Wisconsin 54986-9576

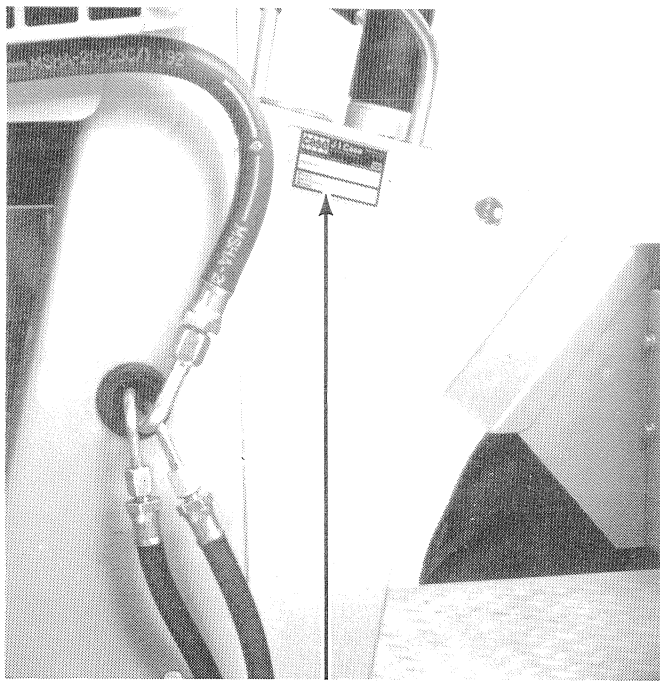
**COMPACT WHEEL LOADERS
MODEL 648 AND 648BH
Parts Catalog No. 8-1422**

7-88-RP-300-641

NOTE: This catalog replaces
Catalog 8-1421



MODEL 648 AND 648BH COMPACT WHEEL LOADERS



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

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.

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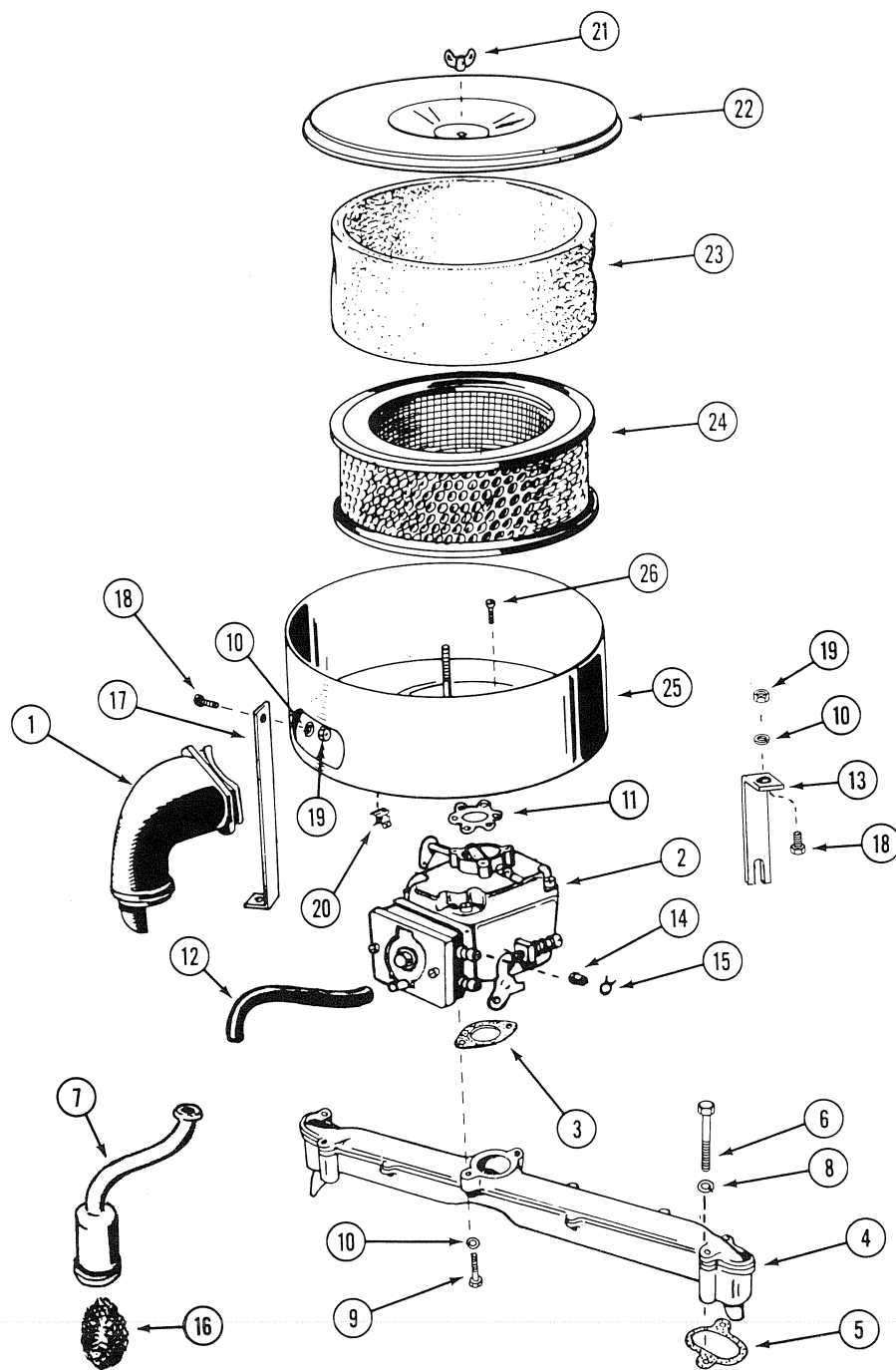
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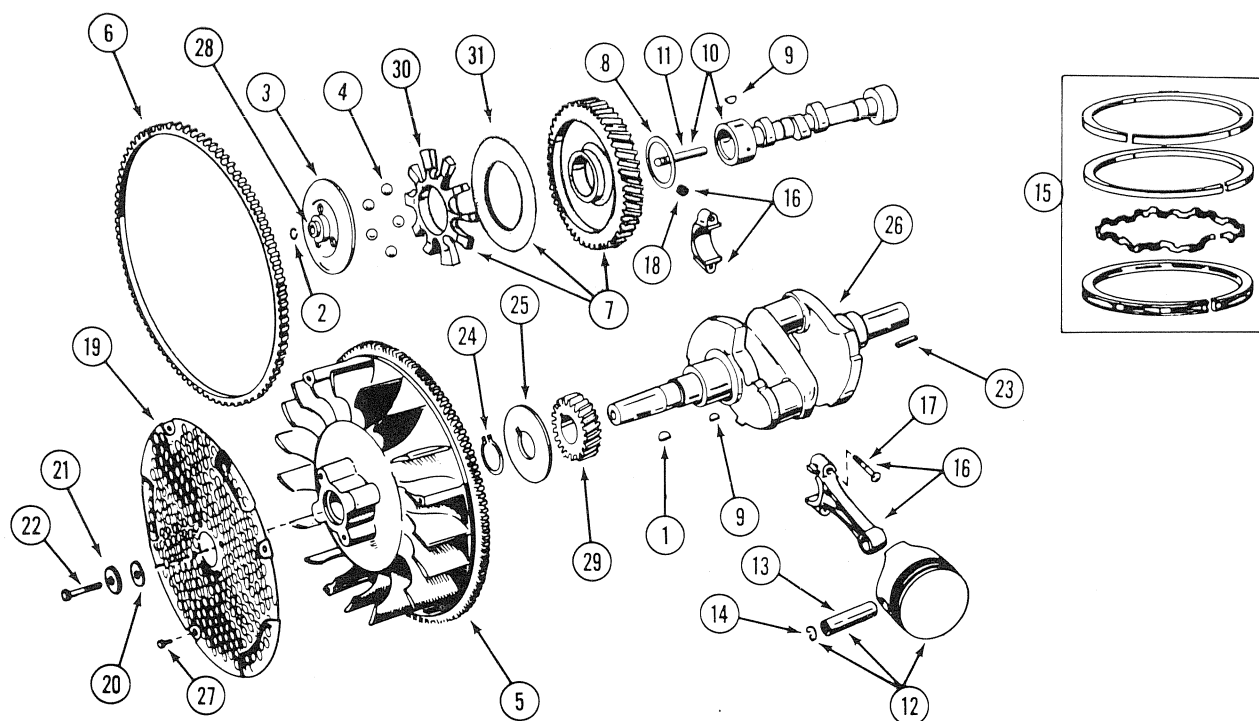


CARBURETOR, AIR FILTER AND MANIFOLD

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

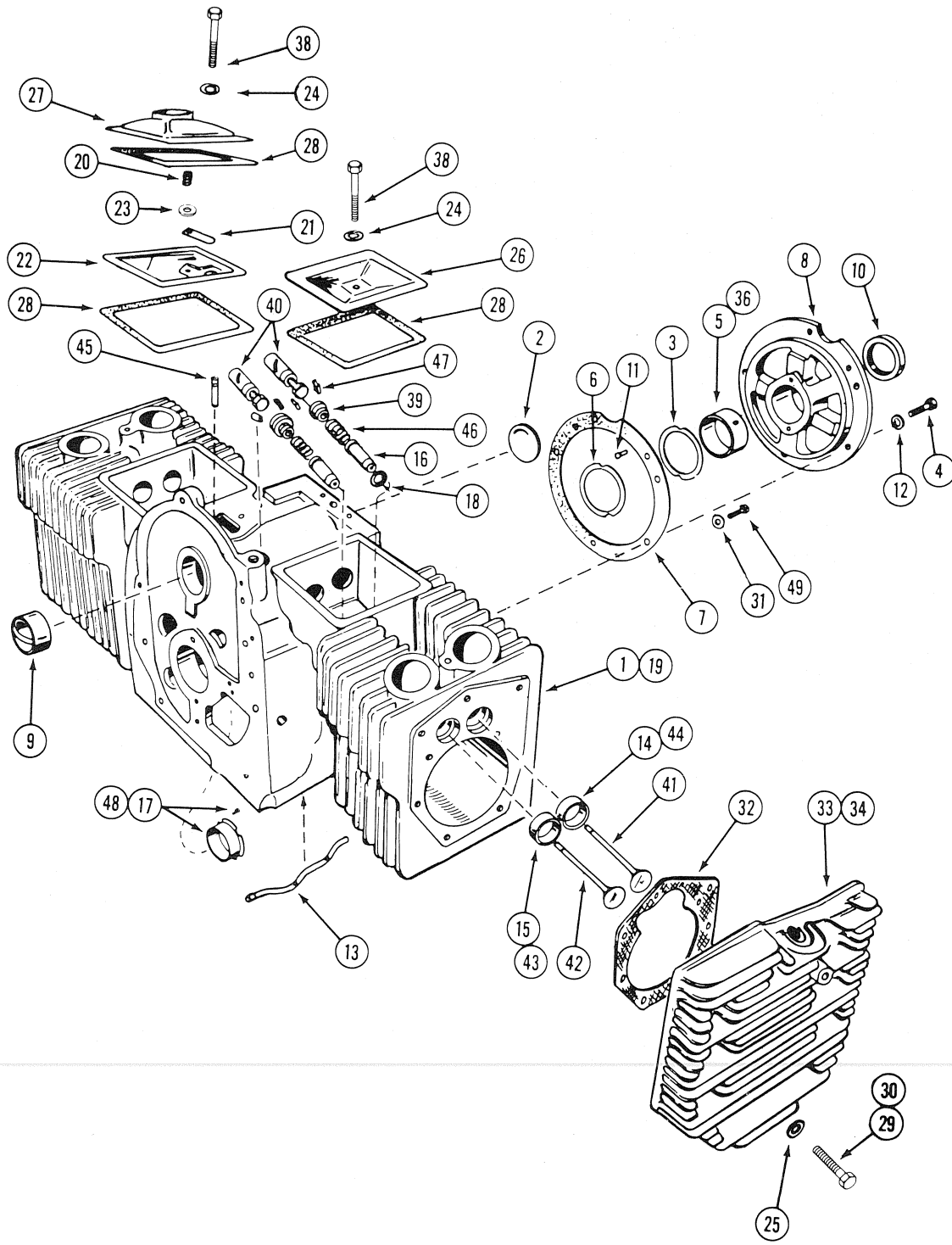
C27507 CARBURETOR AND FUEL PUMP ASSEMBLY

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



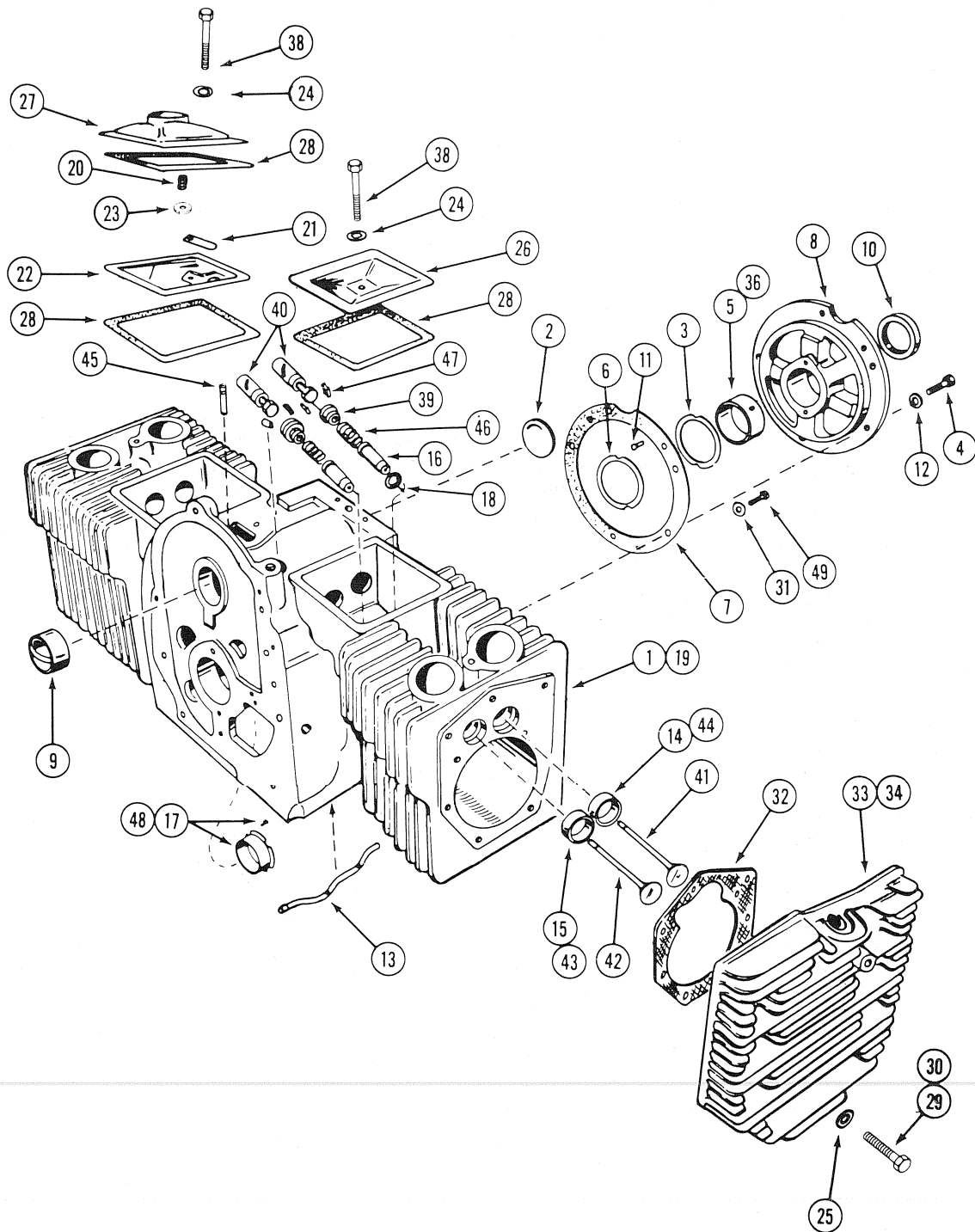
PISTON, CRANKSHAFT, FLYWHEEL AND CAMSHAFT

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



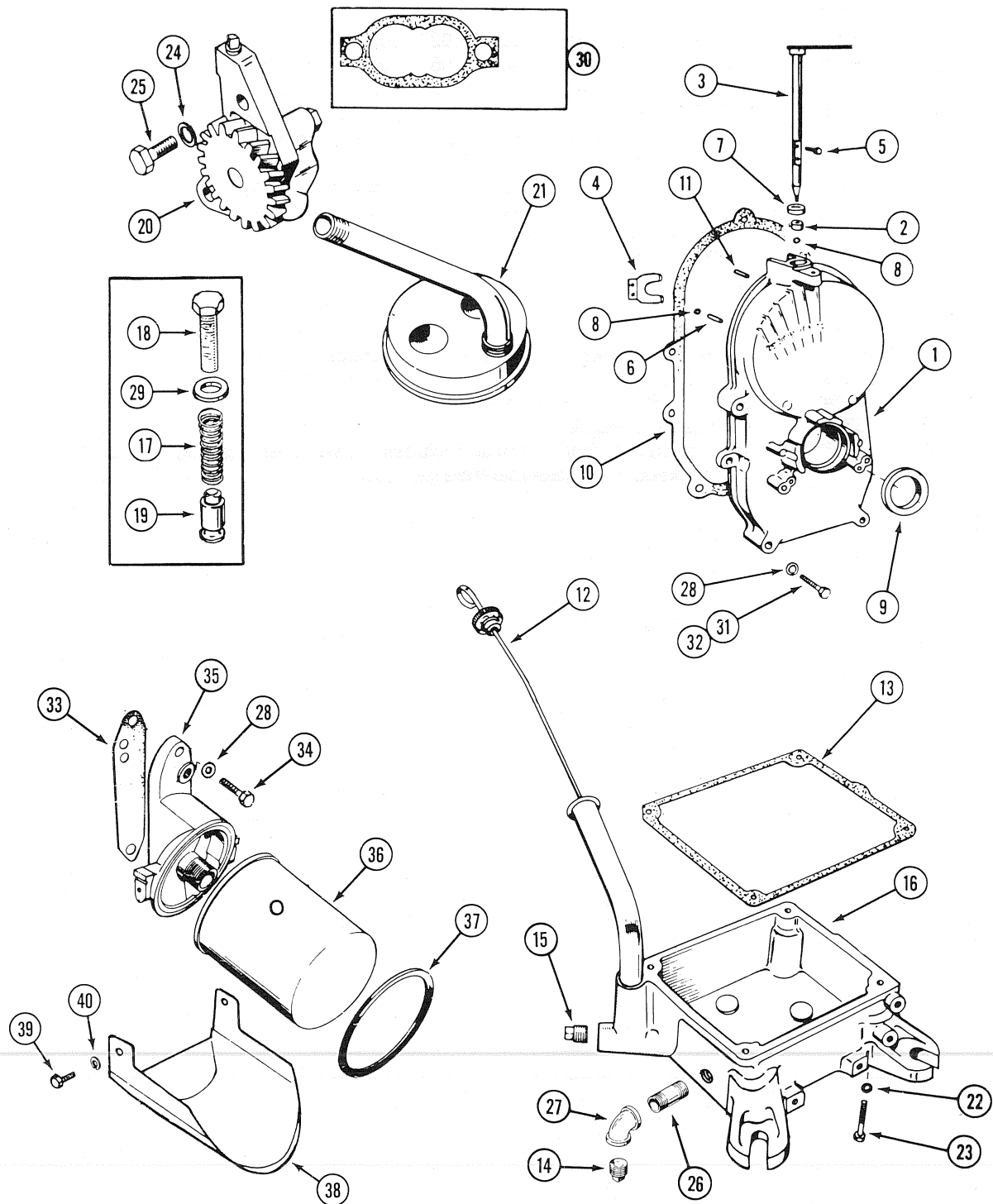
ENGINE BLOCK AND ATTACHING PARTS

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



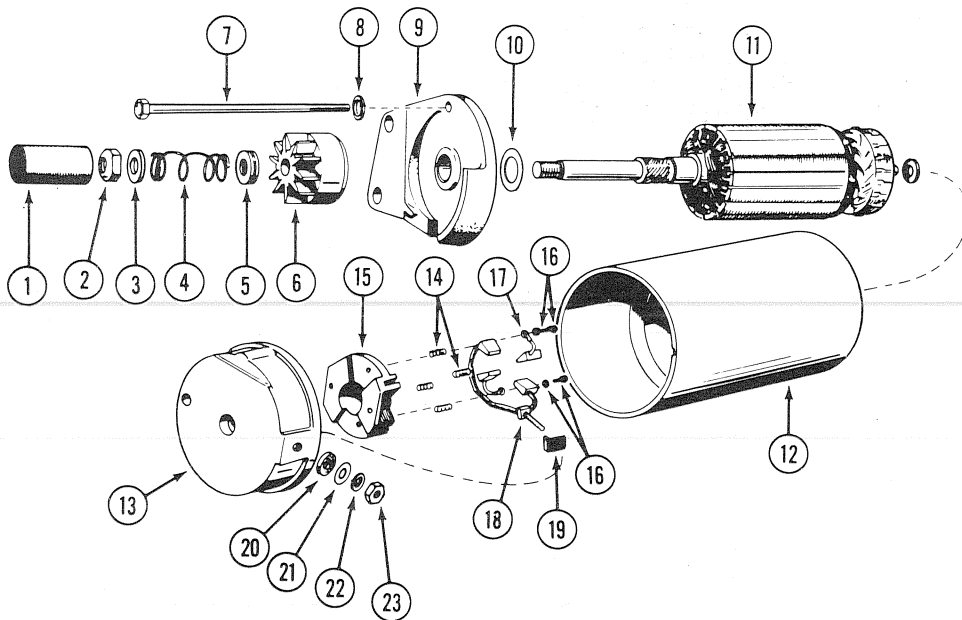
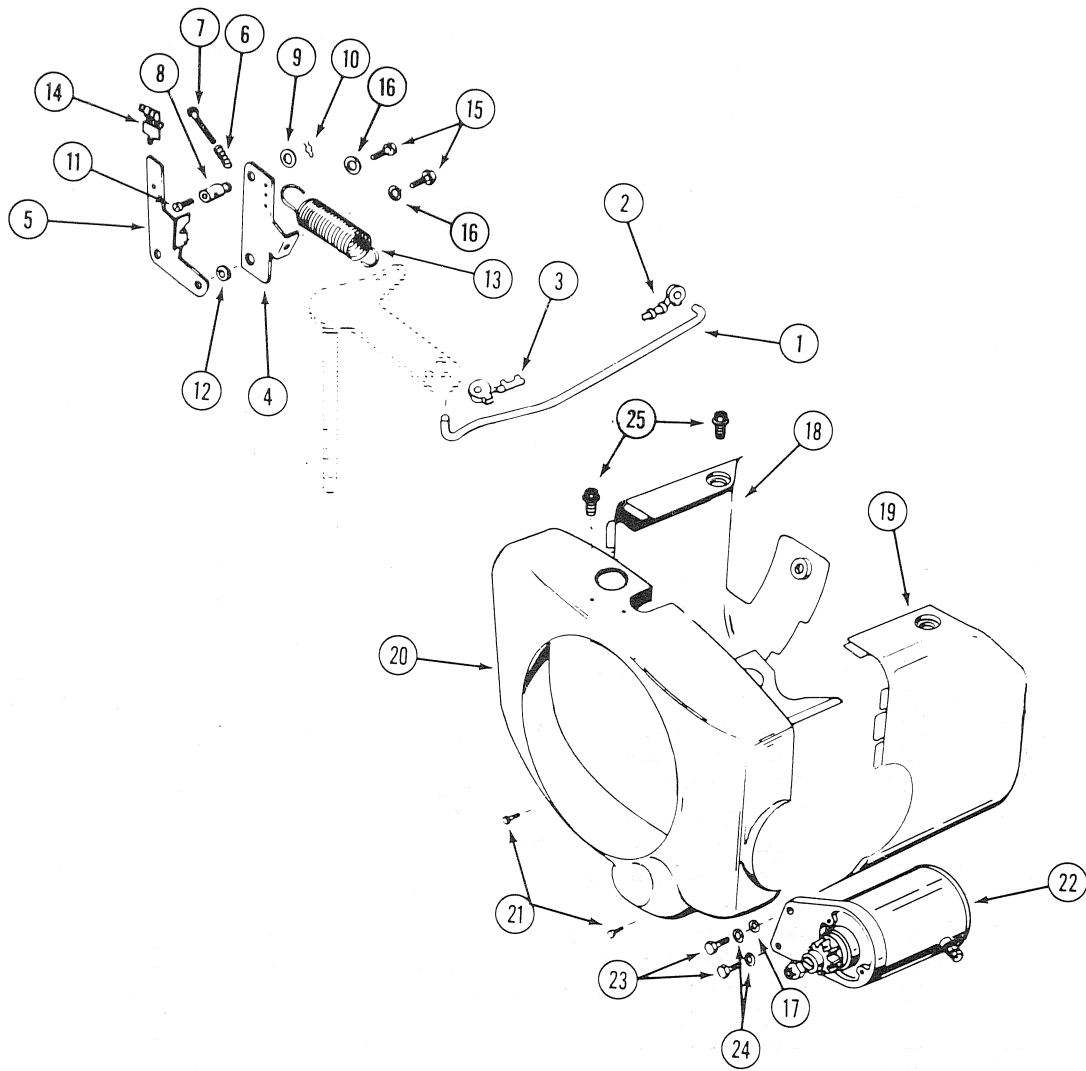
ENGINE BLOCK AND ATTACHING PARTS

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

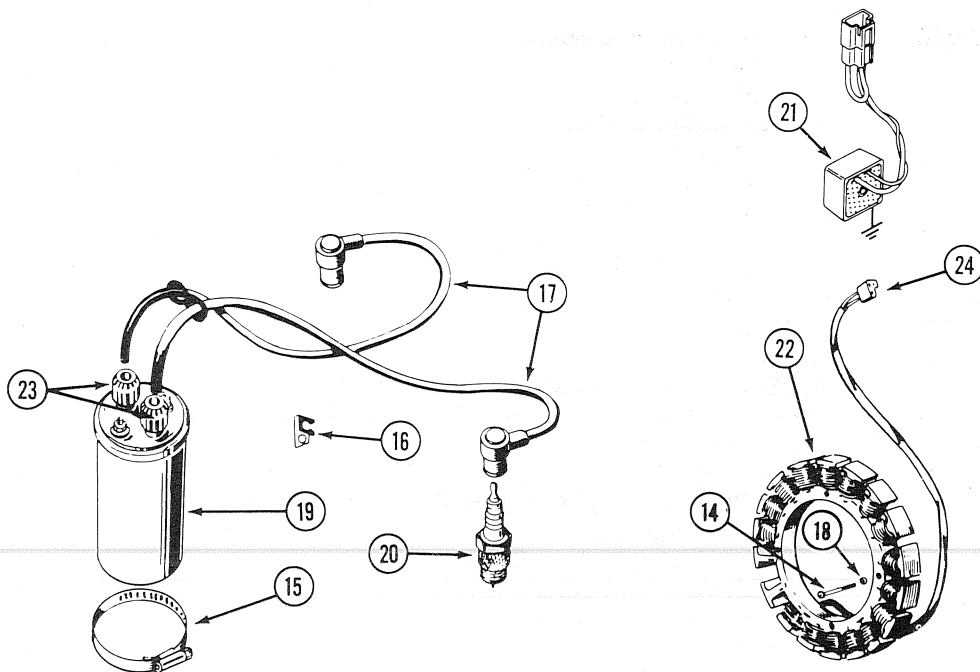
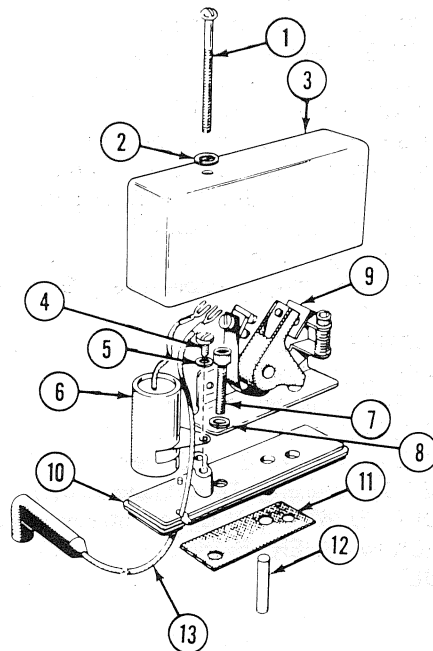


GOVERNOR AND BLOWER HOUSING

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

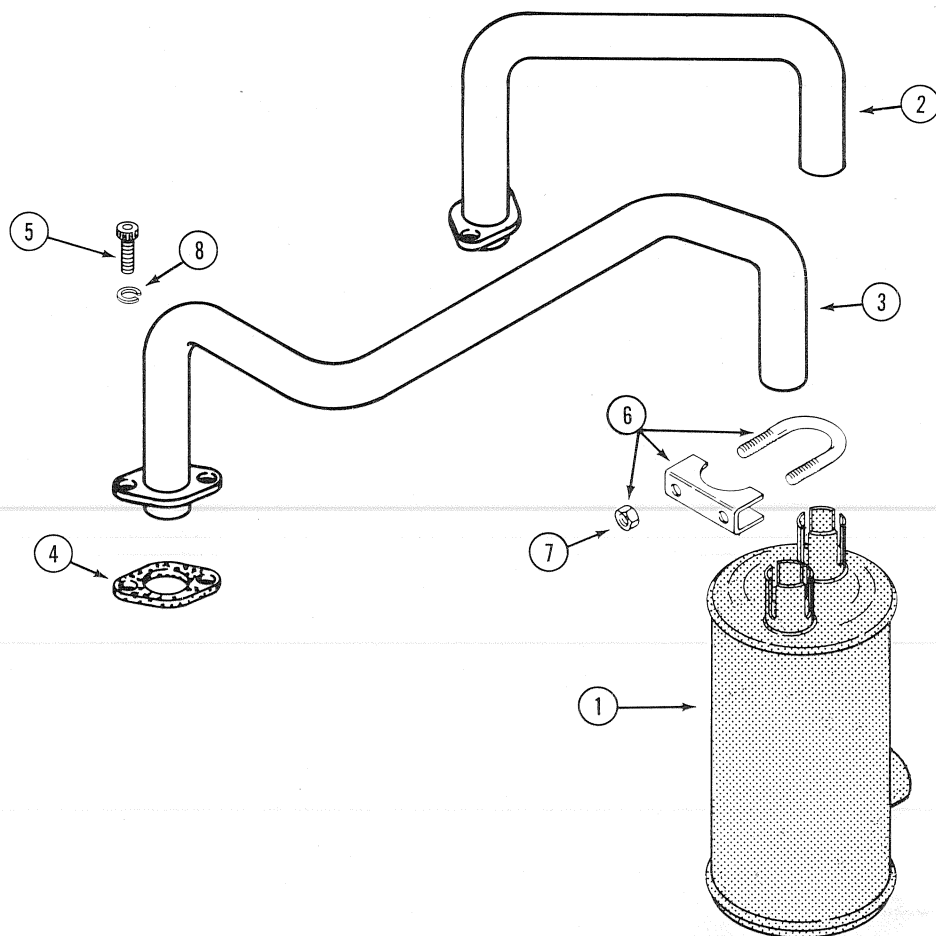
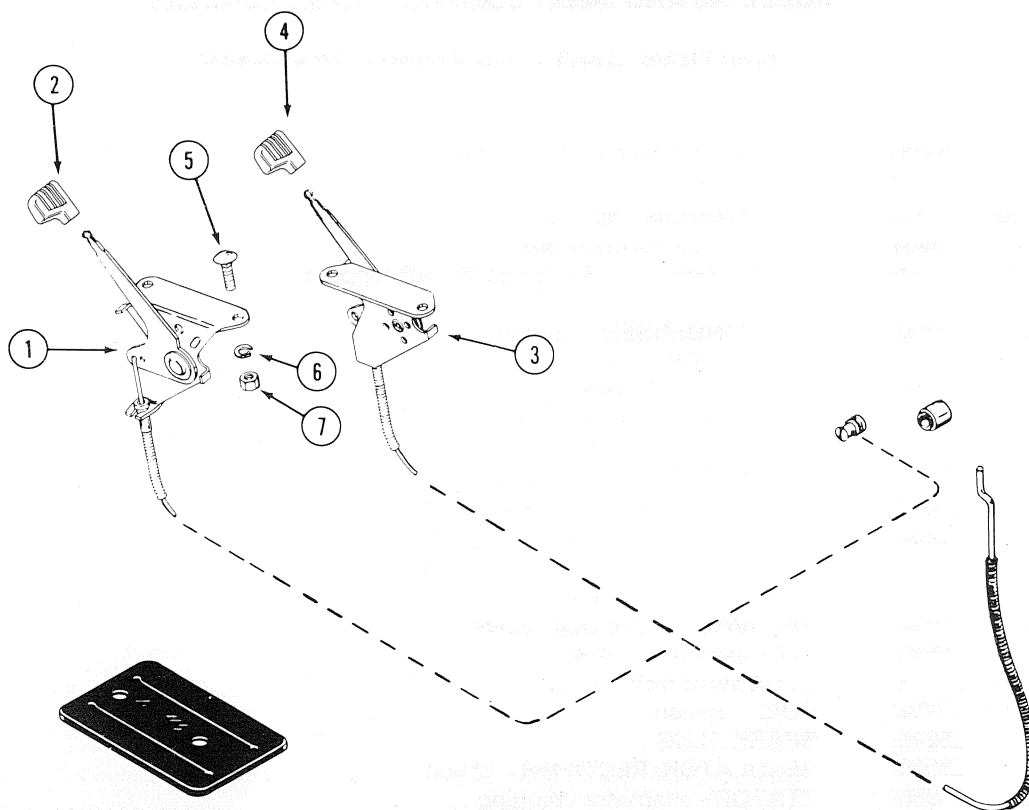
C29733 STARTER MOTOR

	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



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

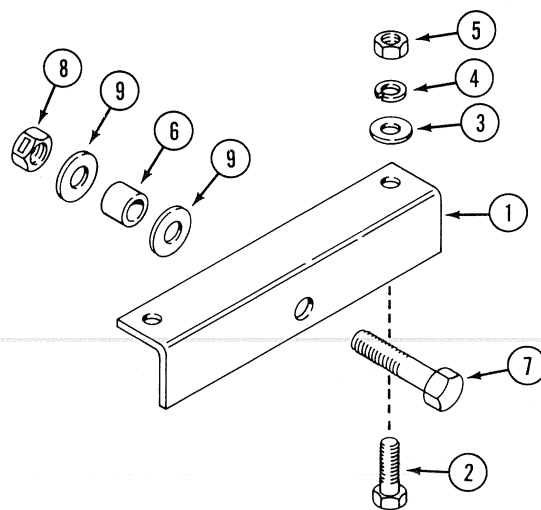
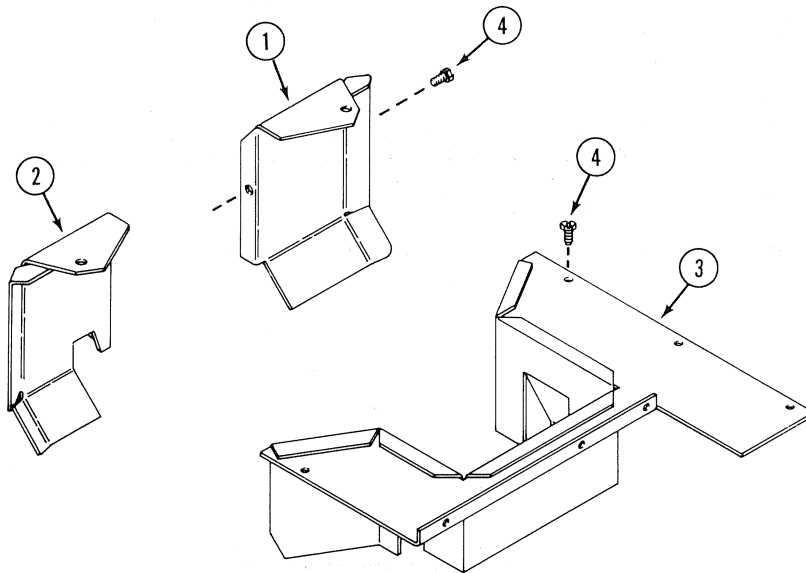


CHOKE AND THROTTLE

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

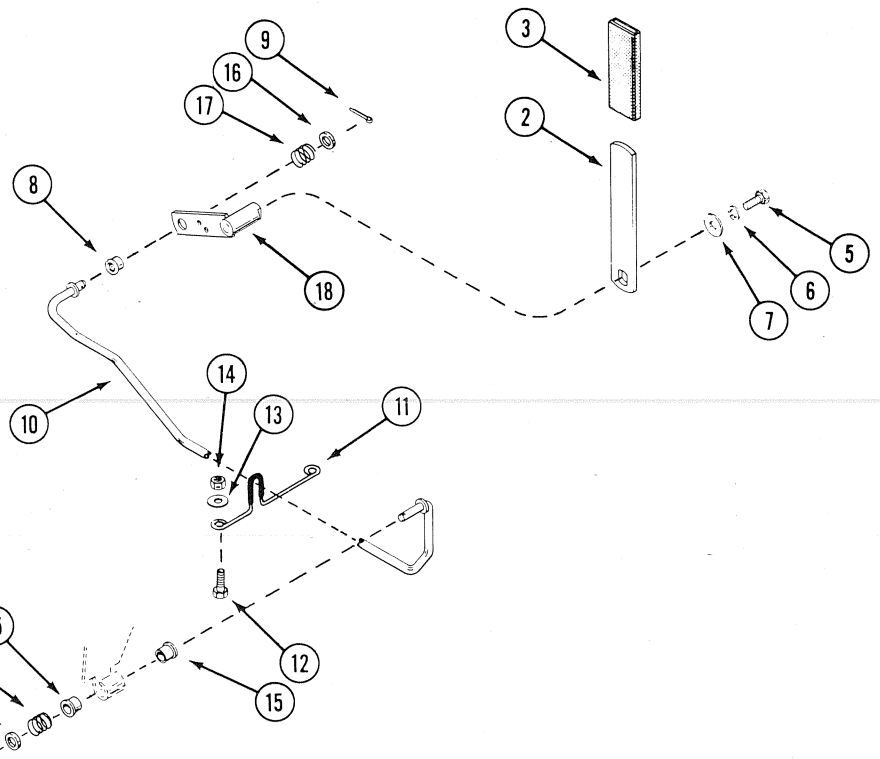
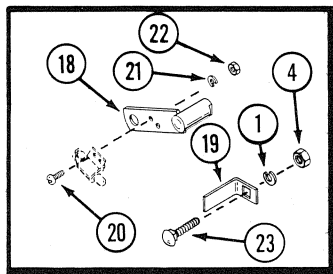
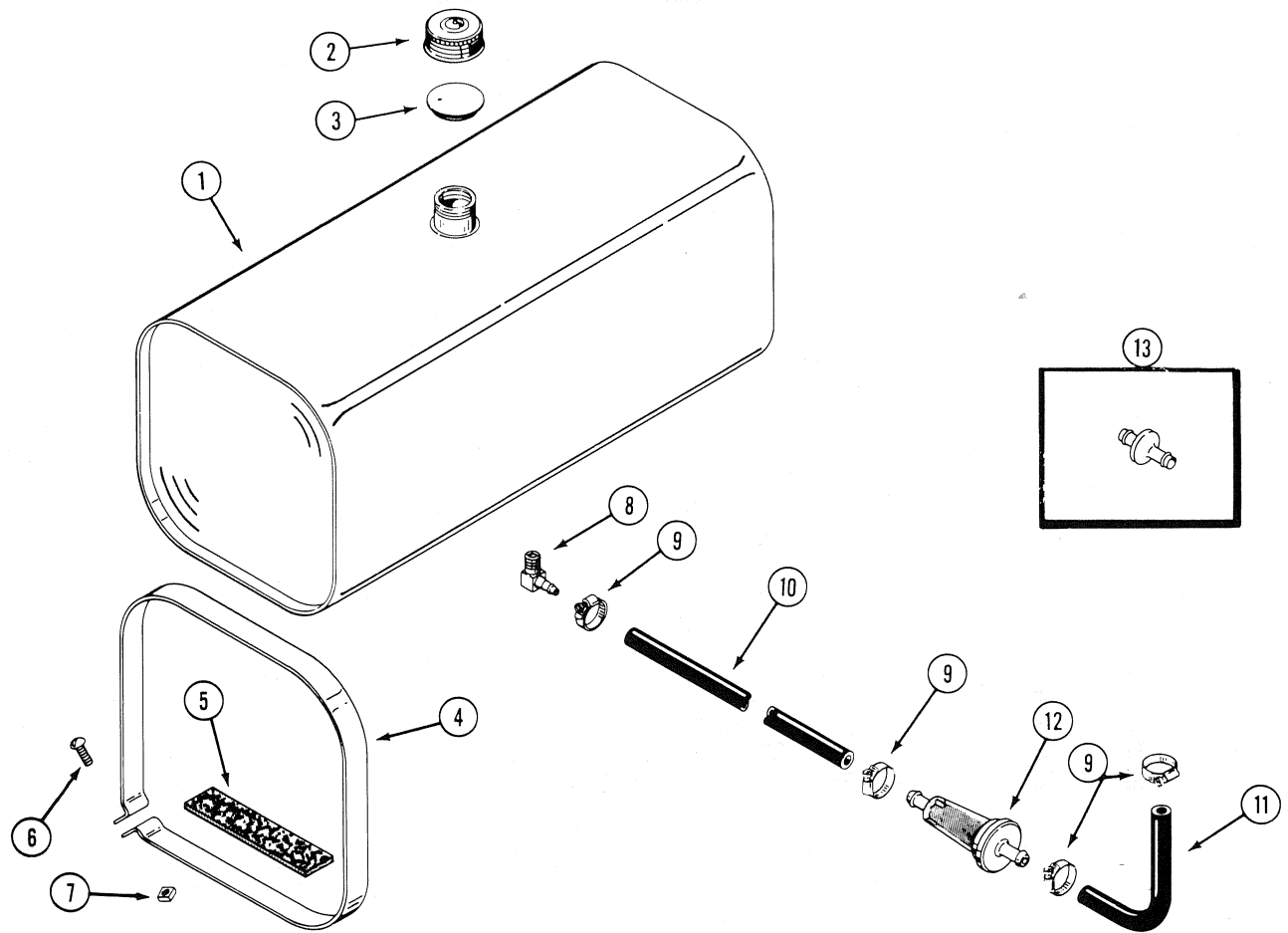


BAFFLES AND SHIELDS

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

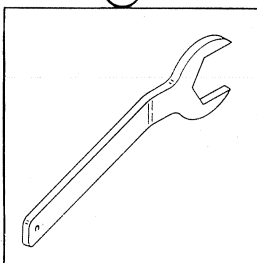
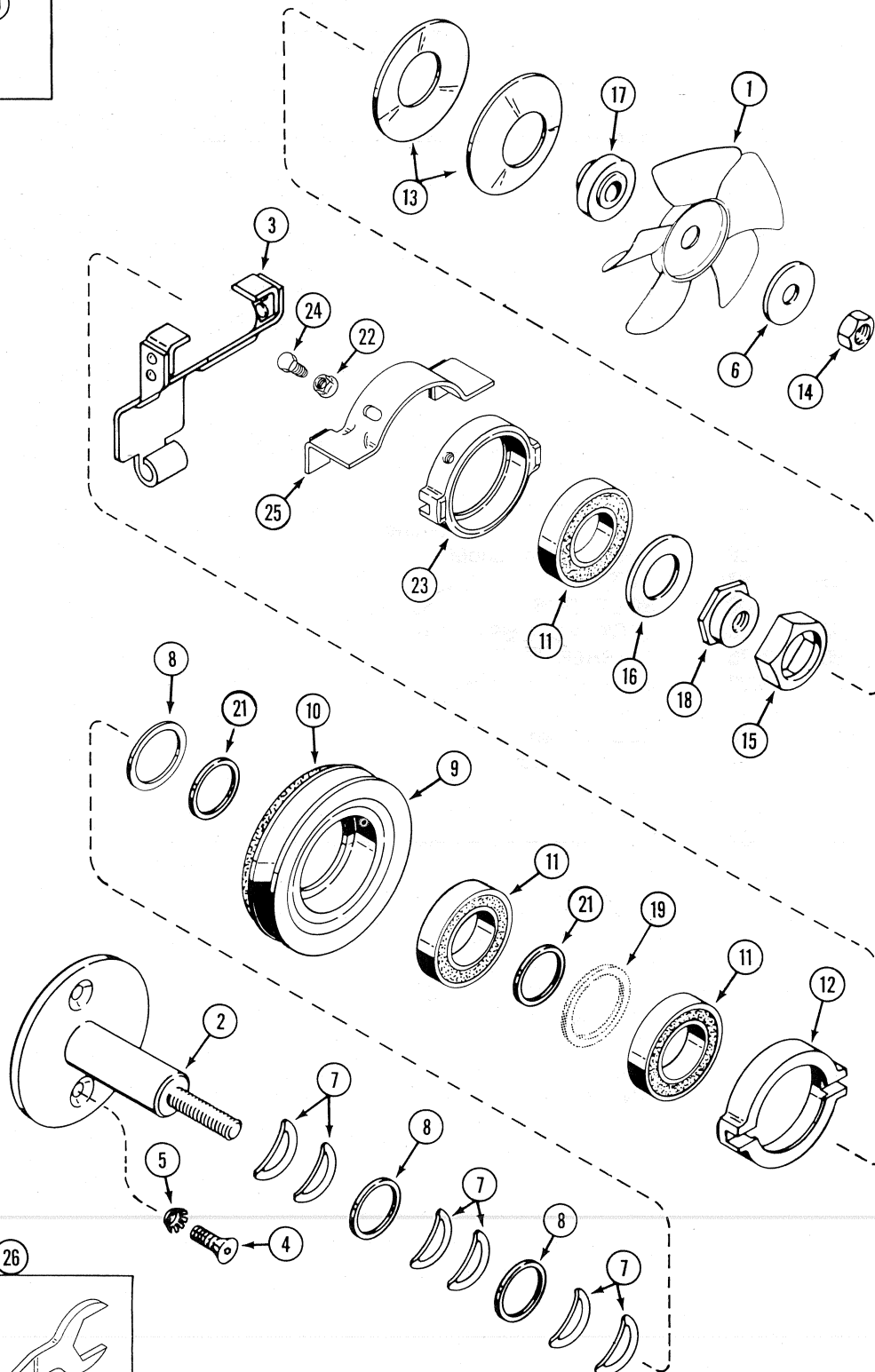
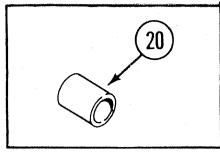


FUEL SYSTEM

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)

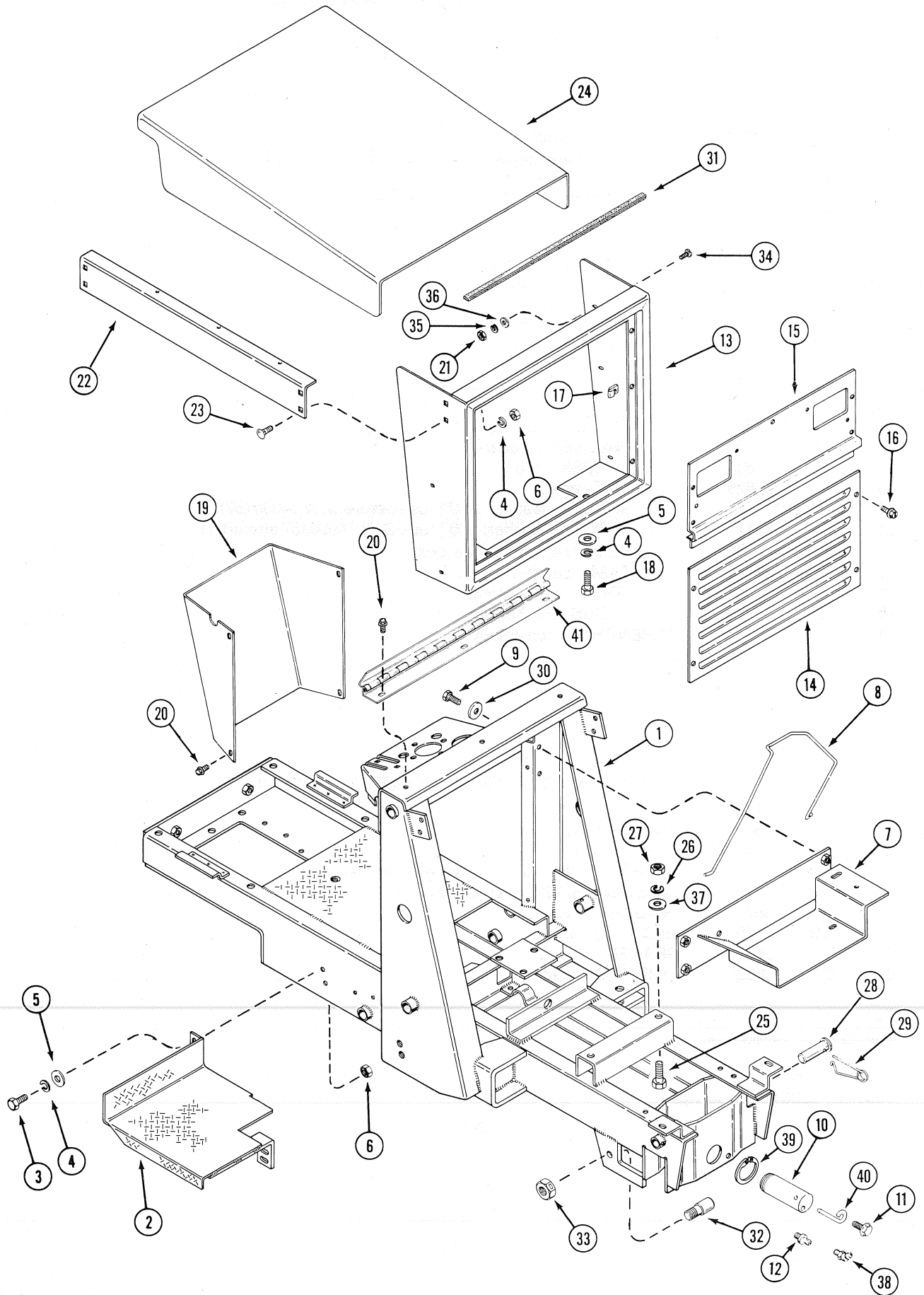
1	C 16616	FAN - cooling	1
2	C 24741	HUB - clutch	1
4	164- 41	SCREW - 5/16" - 18 x 1" flat head, socket	2
5	193- 76	WASHER - 5/16" external lock	2
6	C 28677	WASHER - fan 17/32"	1
14	129- 125	NUT - 1/2" N.F.	1
17	C 23630	SPACER - hub	1
20	C 21652	BUSHING - spacer	1

*Some units use (2) .050" spacers.

Use C29811 for service.

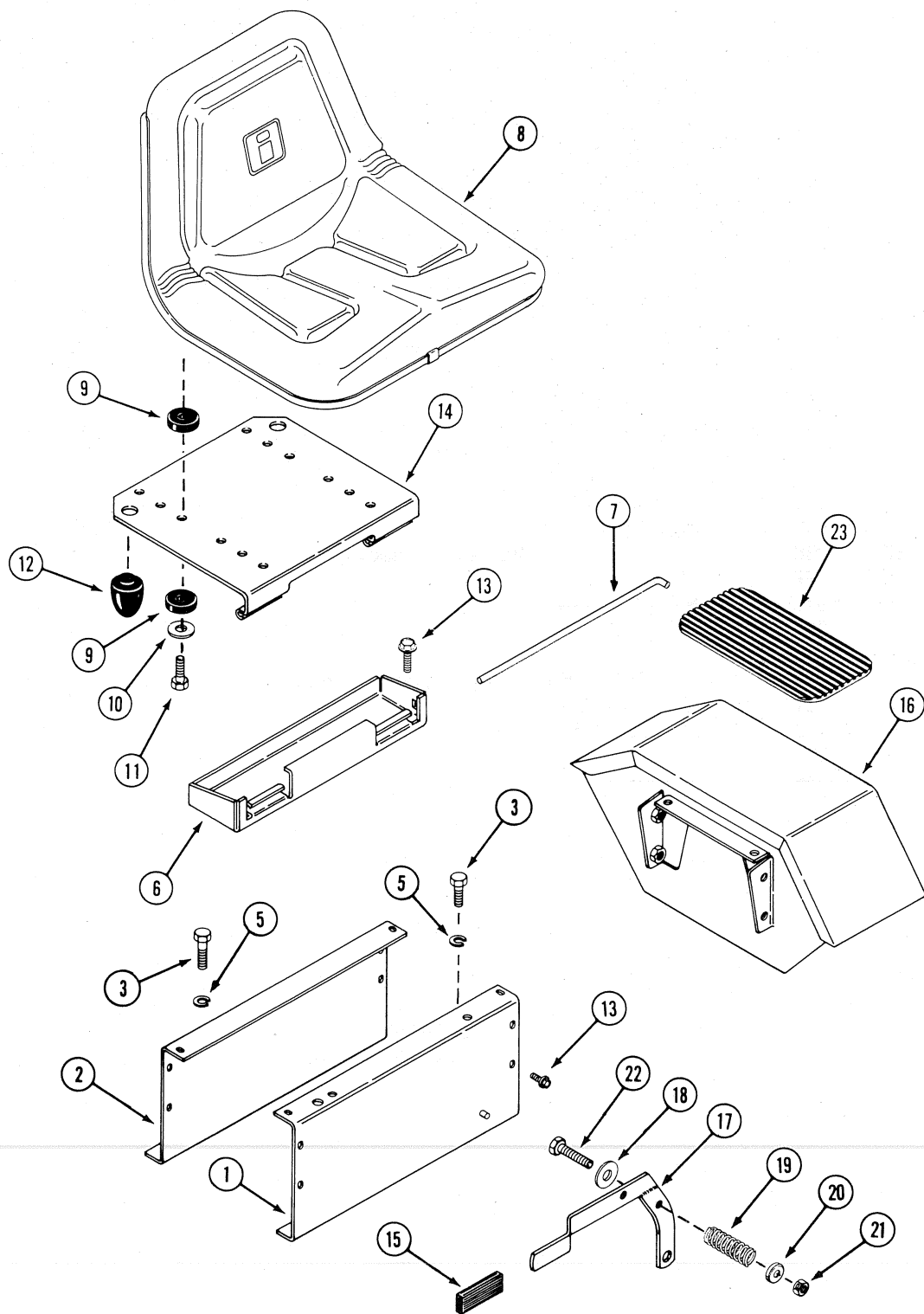
**Some units use (3 or 4) .050" spacers.

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

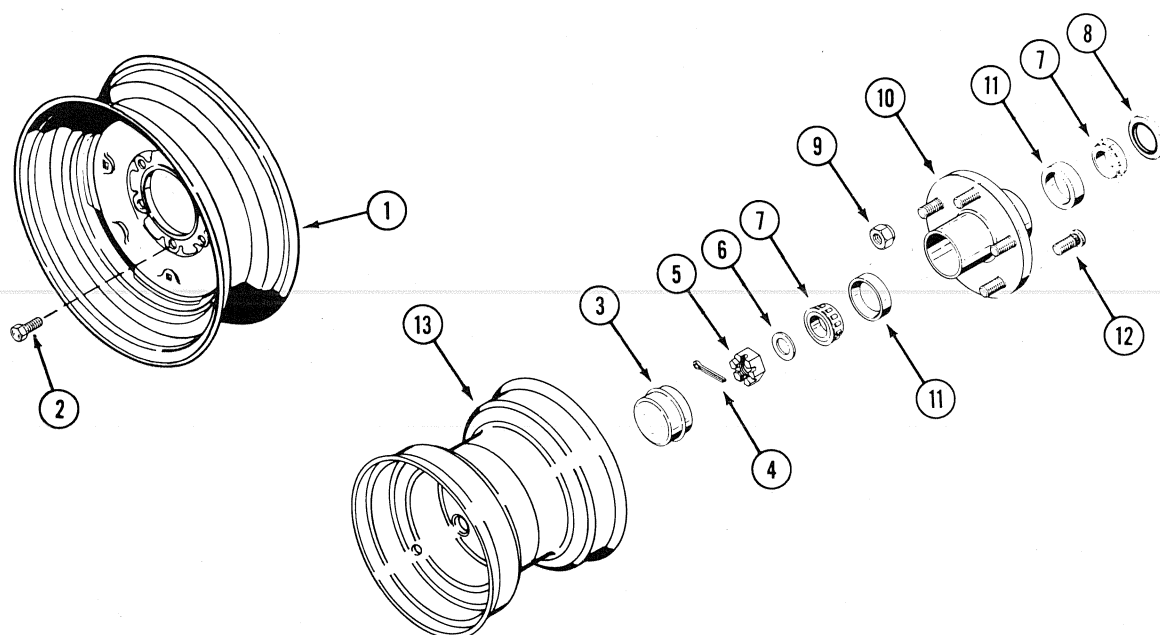
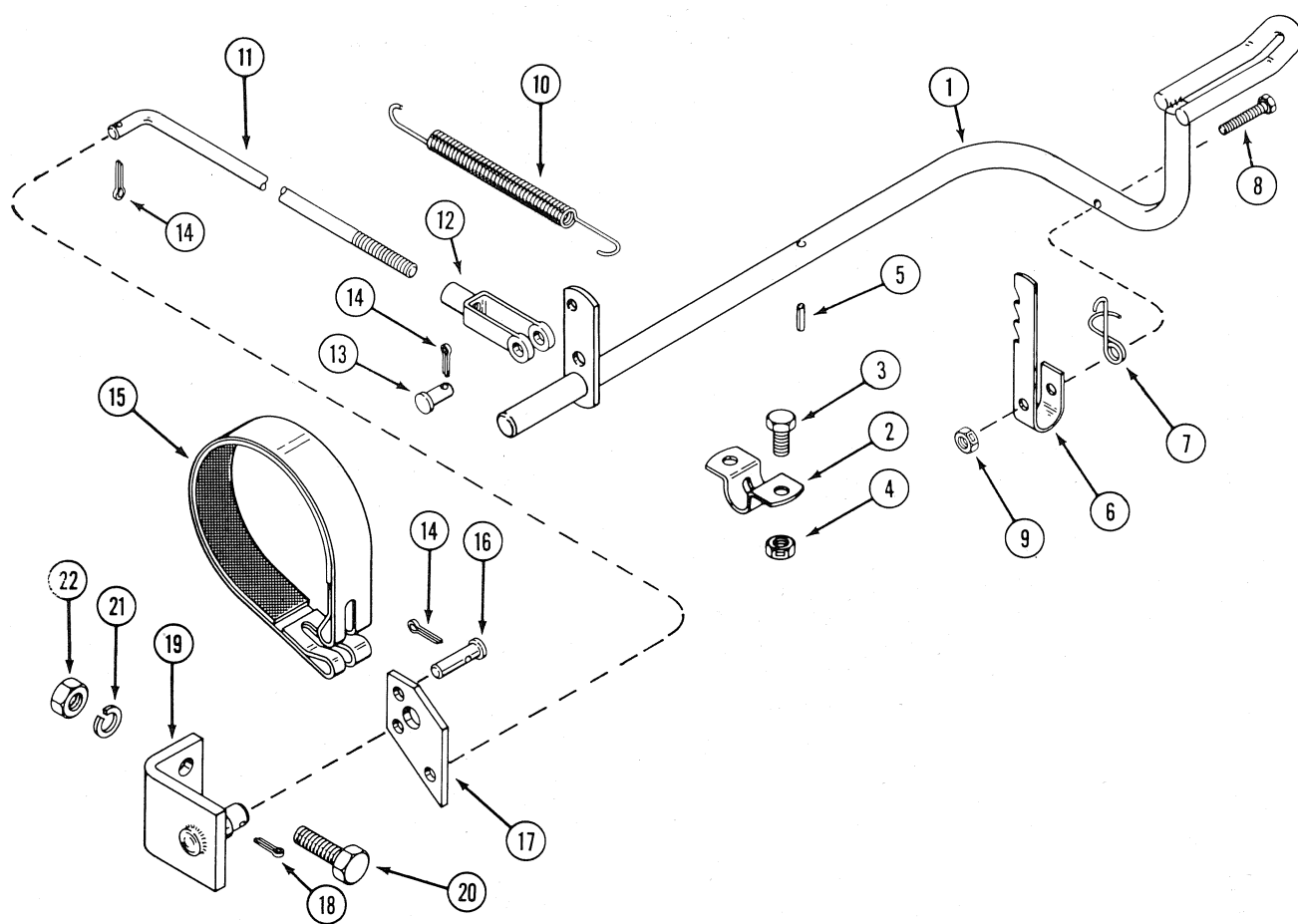


SEAT, FENDERS AND TOOL TRAY

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

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
2	C 29730	SPINDLE - L.H. (use S/N 14098406 and after) shown	1
3	C 25937	SPINDLE - R.H.	1
4	NSS	SHAFT - steering (use C26329, C26325 and 138-143)	1
5	NSS	ARM - upper, spindle (before S/N 14098406 use C30163, C29730)	1
5	C 30163	ARM - upper spindle (use S/N 14098406 and after) shown	1
6	113- 417	BOLT - 1/2" x 1-3/4" NC hex	1
7	192- 23	LOCK WASHER - 1/2"	1
8	195- 536	WASHER - 9/16"	1
9	C 17684	WASHER - thrust	4
10	C 28248	RING - retaining	1
11	C 12888	BUSHING - spindle	4
12	C 18248	SPACER - bearing	2
13	219- 17	FITTING - lubrication	2
14	C 13106	COVER - lubrication fitting	2
15	C 25942	TIE ROD	1
16	C 29010	KEY - 1/4" x 1/4" x 1-3/8" (use before S/N 14098406)	1
17	C 25943	BALL JOINT	3
18	C 25997	TUBE - steering column	1
19	129- 127	NUT - 5/8" N.F. hex	6
20	192- 25	LOCK WASHER - 5/8"	3
21	126- 16	KEY - Woodruff #10	1
22	C 18014	WHEEL - steering (use before S/N 14030174)	1
23	C 12975	WASHER - 5/8"	1
24	131- 1113	NUT - lock 5/8" NC hex	1
25	C 16945	CAP - steering wheel (use before S/N 14030174) and (S/N 14076821 and after)	1
26	138- 172	PIN - roll 3/8" x 1-1/4" (use before S/N 14076821)	1
27	C 26329	SHAFT - steering (use S/N 14030174 to 14076821)	1
28	C 26325	WHEEL - steering (use S/N 14030174 to 14076821)	1
29	138- 143	PIN - roll 1/4" x 2-1/4" (use S/N 14030174 to 14076821)	1
30	C 27990	WHEEL - steering (use S/N 14076821 and after)	1

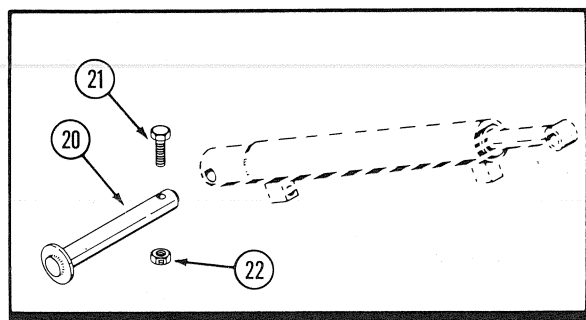
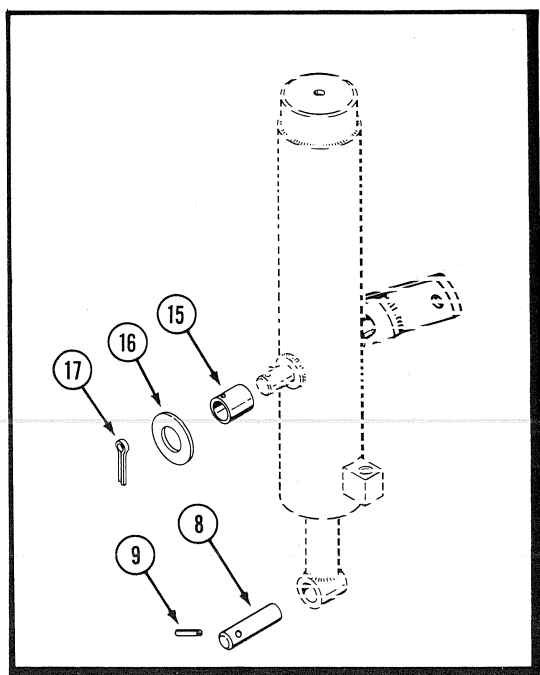
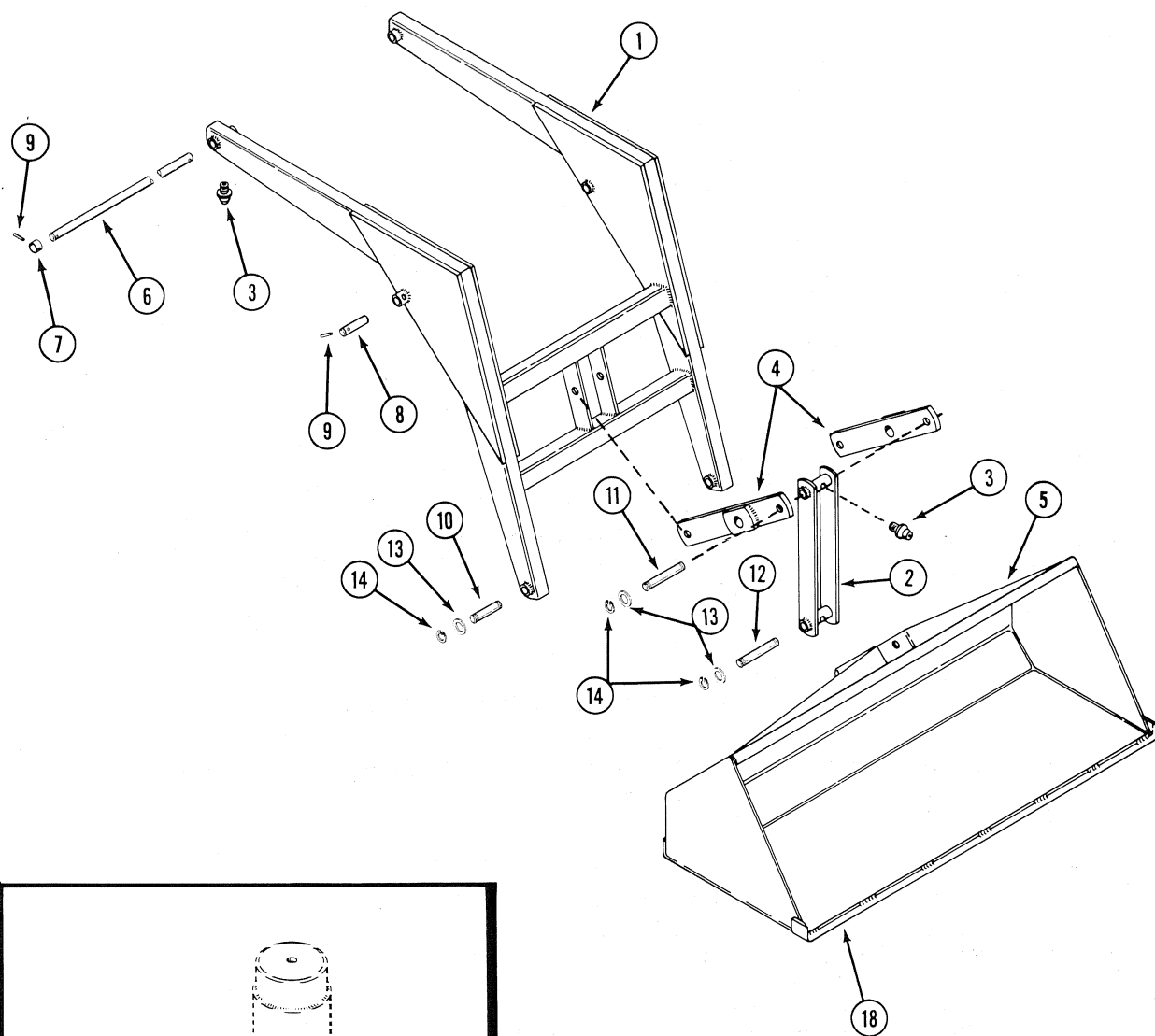


BRAKE ASSEMBLY

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

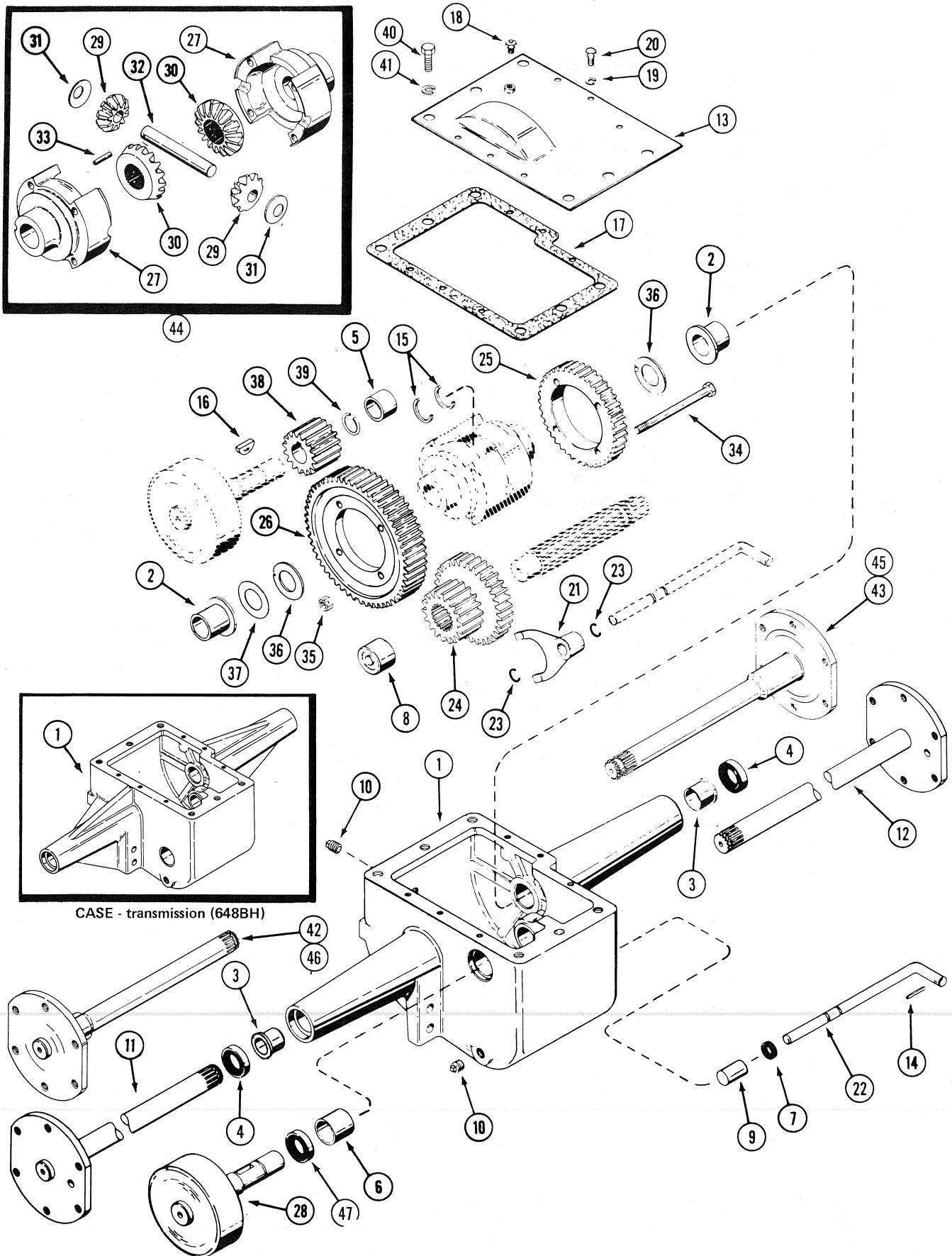
FRONT AND REAR WHEELS

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



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



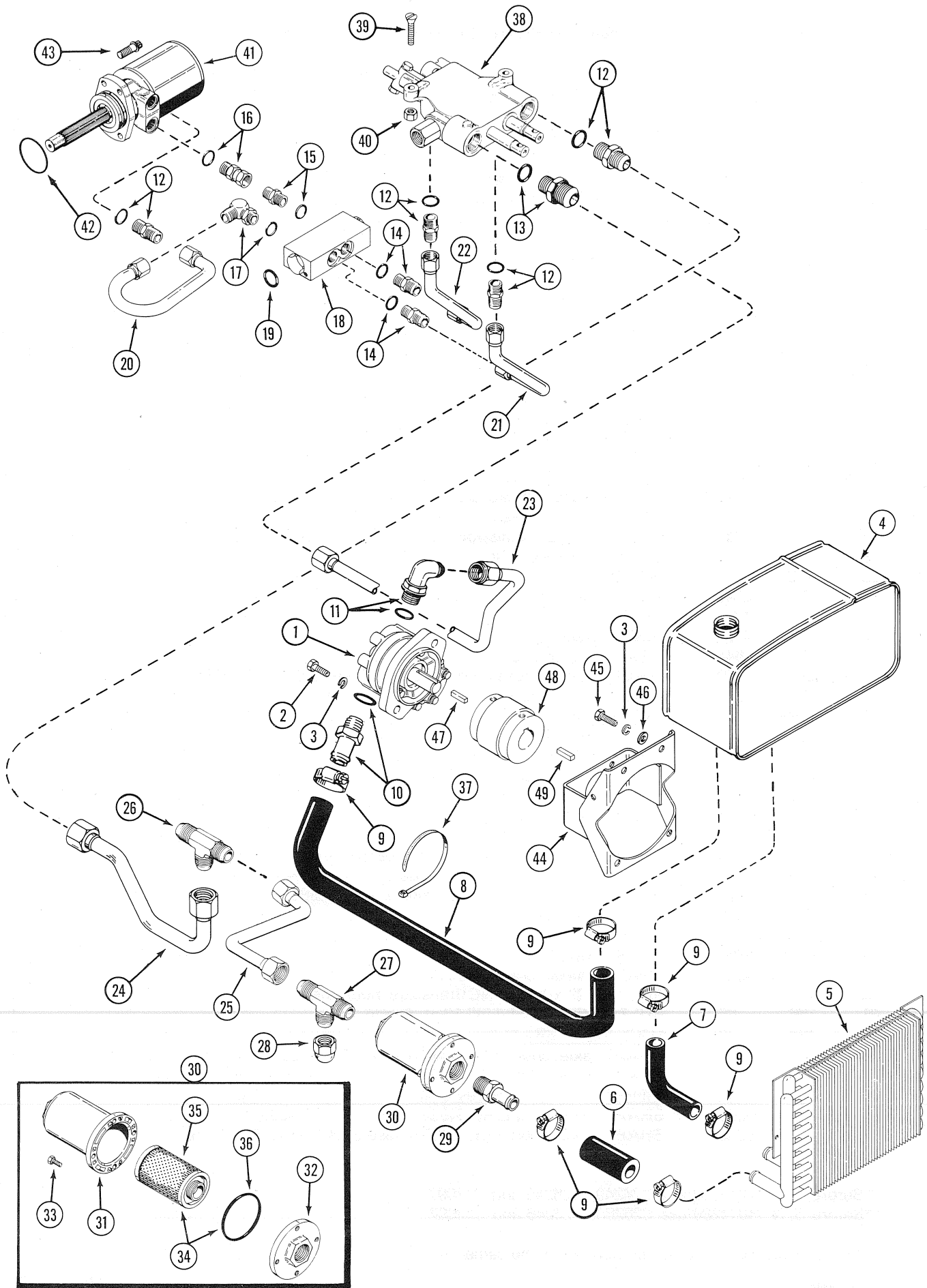
TRANSMISSION AND FINAL DRIVE

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	UAR
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.



HYDRAULIC SYSTEM (TRAVEL CONTROL)

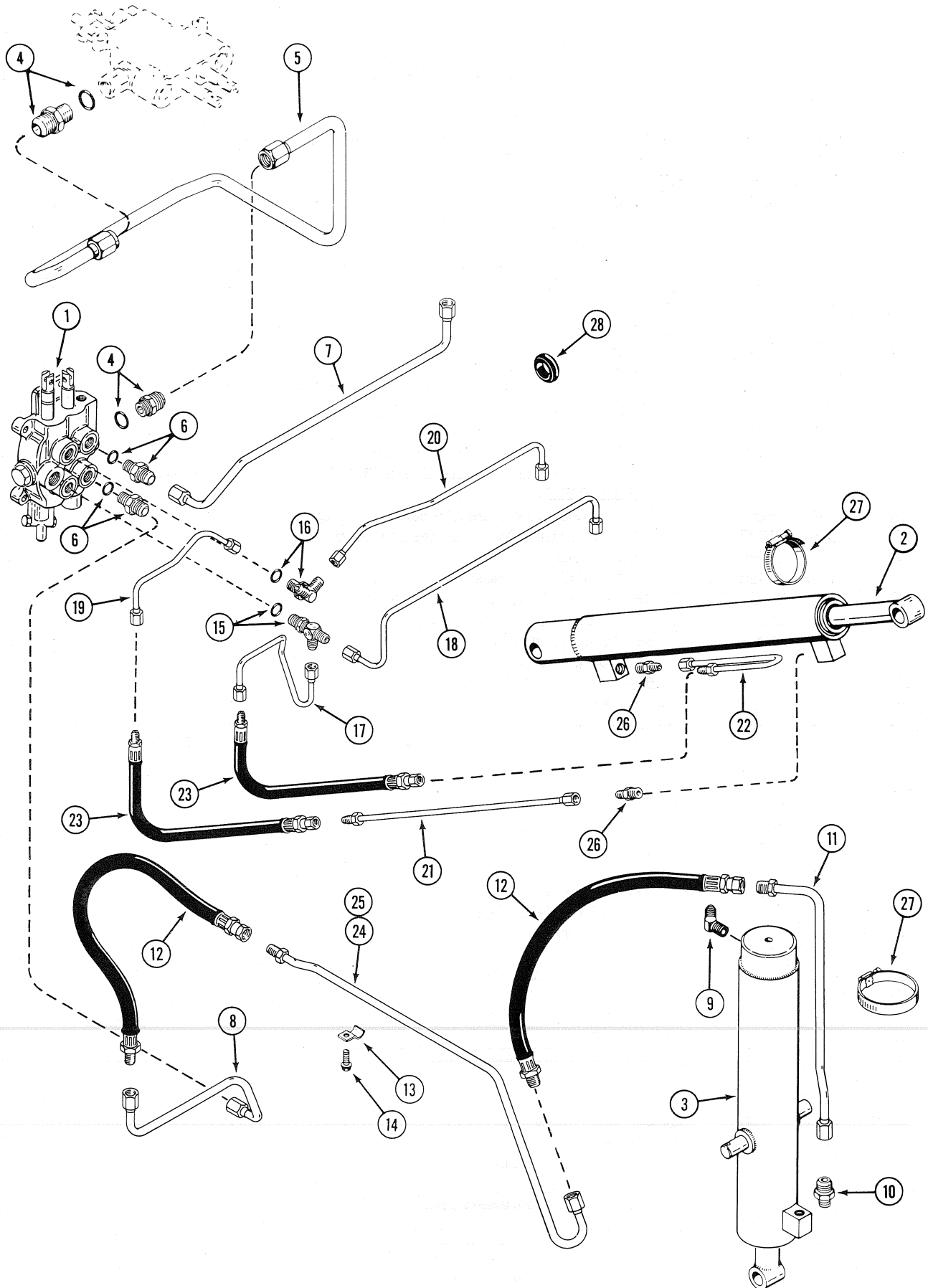
REF.	PART NO.	DESCRIPTION	REQ'D
1	NSS*	PUMP - hydraulic (repairs page 53) (use C28370, C28371, 217-179)	1
1	C 28370**	PUMP - hydraulic (repairs page 53)	1
2	61- 616	SCREW - 3/8" - 16 - 1" hex socket head N.C. (use before S/N 14030241)	2
2	62- 616	SCREW - 3/8" - 24 x 1" N.F. (use S/N 14030241 and after)	2
3	192- 21	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- 256	CLAMP - hose	6
10	217- 390*	FITTING - pump inlet (includes 218-5008 "O" ring)	1
10	217- 179**	FITTING - pump inlet (includes 218-5008 "O" ring)	1
11	218- 5107	FITTING - pump outlet 90° (includes 218-5007) "O" ring)	1
12	218- 5062	FITTING - hydraulic (includes 218-5007 "O" ring)	4
13	218- 5065	FITTING - travel valve outlet (includes 218-5007 "O" ring)	1
14	218- 5066	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- 5251	FITTING - swivel (includes 218-5007 "O" ring)	1
17	218- 5117	FITTING - hydraulic 90° (includes 218-5006 "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- 596	FITTING - tee	1
27	218- 616	FITTING - tee	1
28	218- 335	CAP - tee	1
29	217- 155	FITTING - hydraulic	1
30	C 30152	FILTER - hydraulic oil	1
31	C 28753	HOUSING - filter	1
32	C 28754	COVER - filter	1
33	113- 3	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- 247	SCREW - 5/16" - 18 x 1-1/4" flat head	2
40	131- 351	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- 86	BOLT - 1/2" - 13 x 1-1/4" 12 point flanged	4
44	C 25948	SUPPORT - pump	1
45	113- 206	BOLT - 3/8" x 3/4"	4
46	195- 104	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

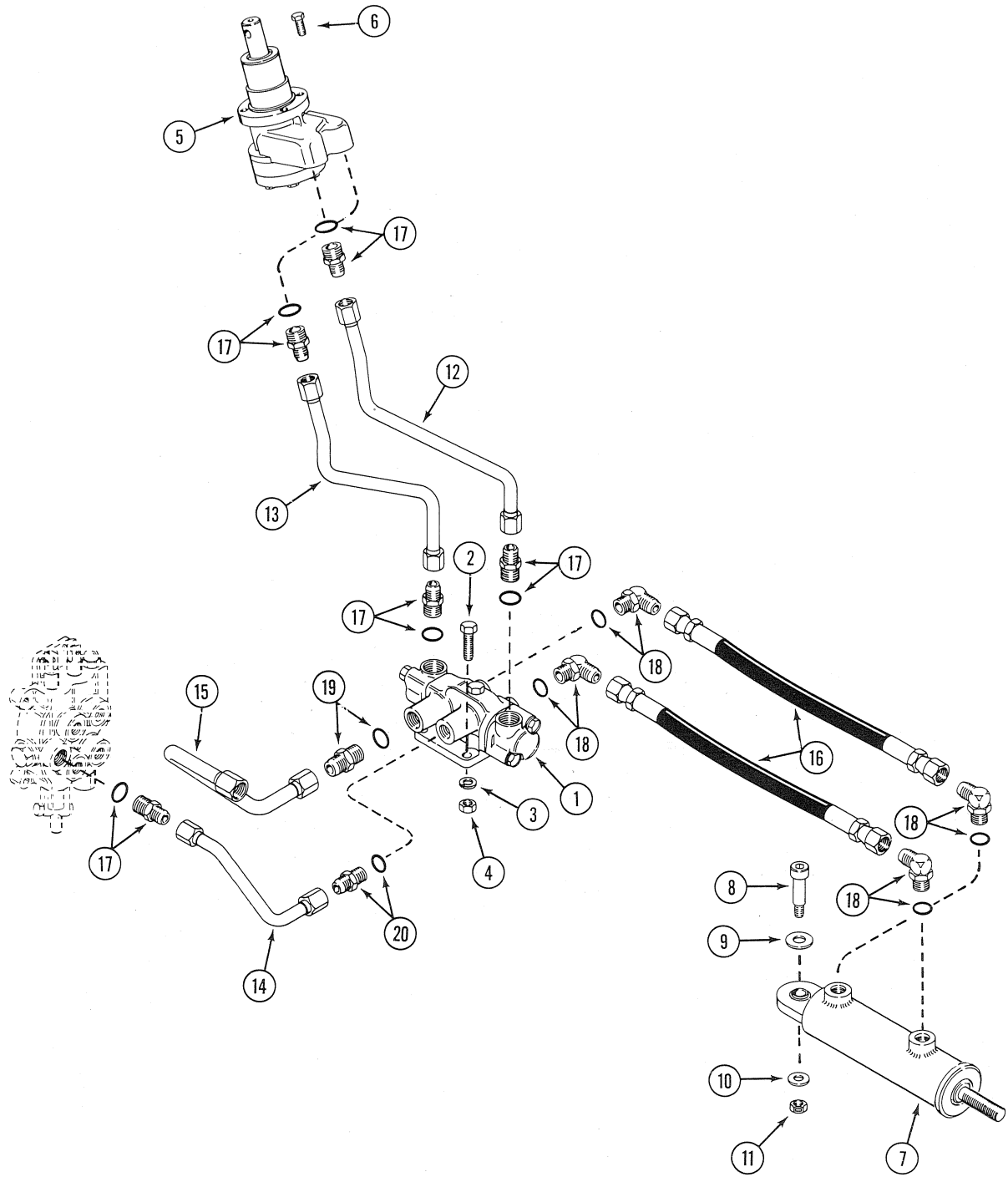
648BH-14076822



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	GROMET - tower	2

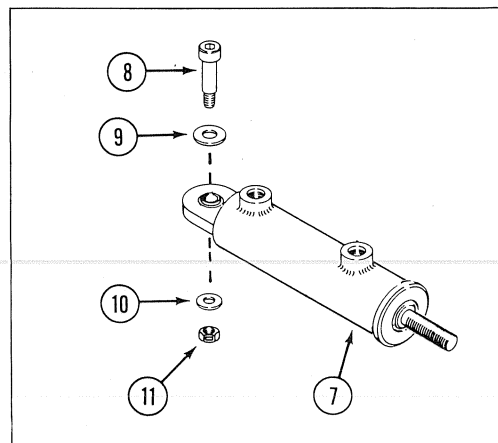
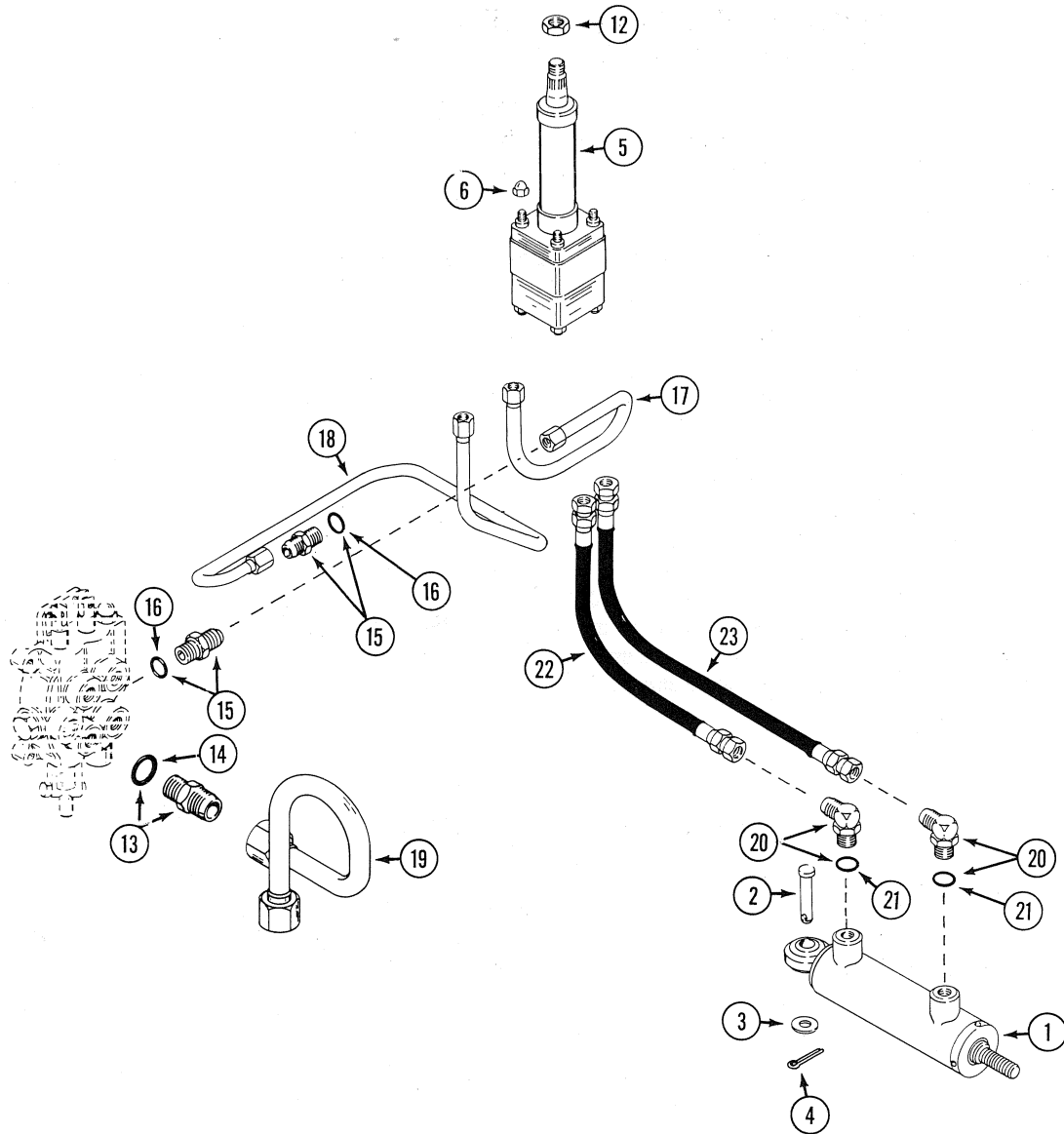
*see page 45B for use
S/N 14076821 and after



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

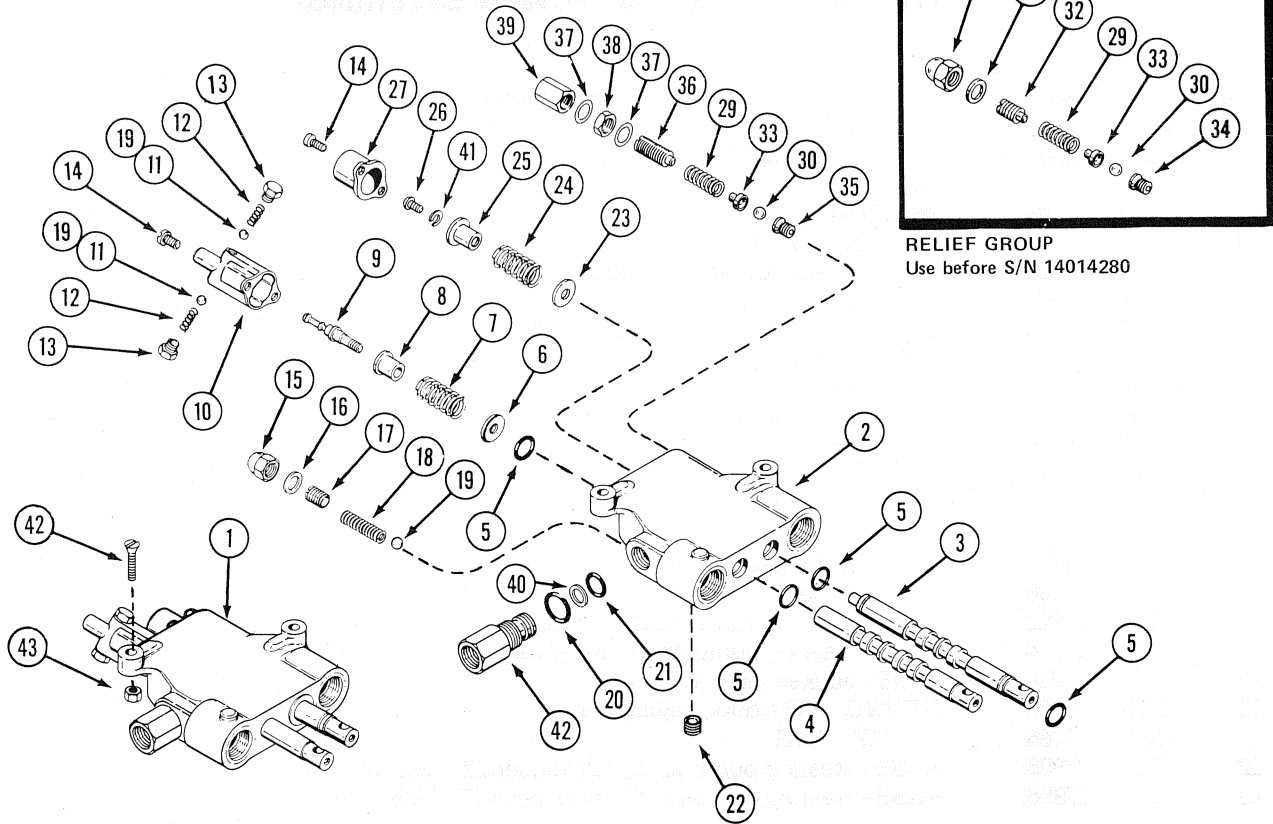


USE BEFORE S/N 14076828

HYDRAULIC SYSTEM (POWER STEERING)

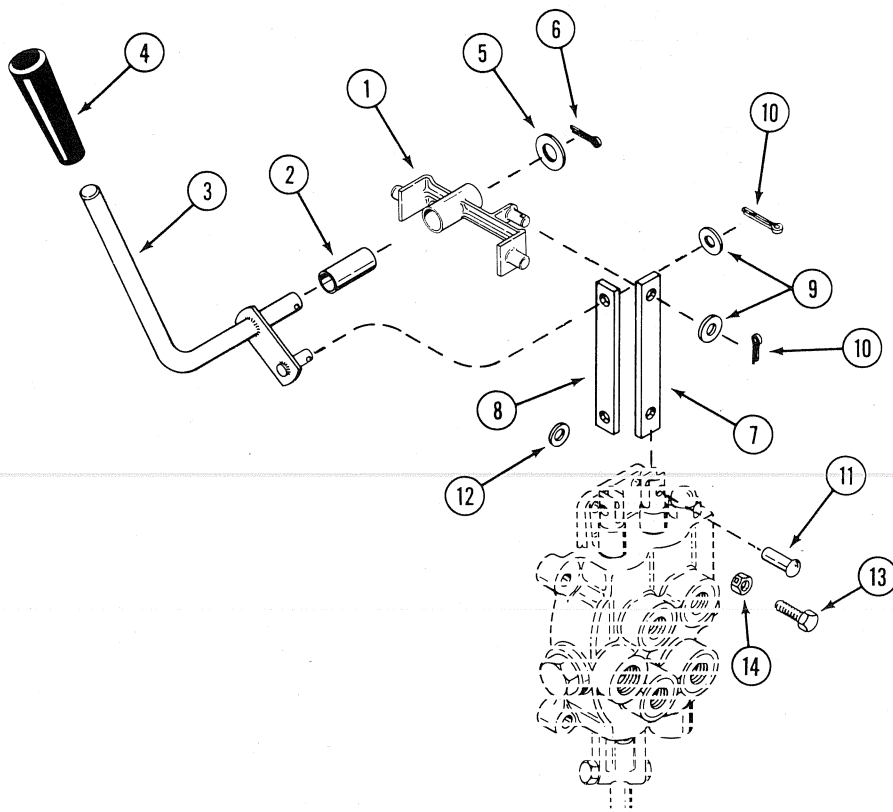
(Use S/N 14076821 and after)

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

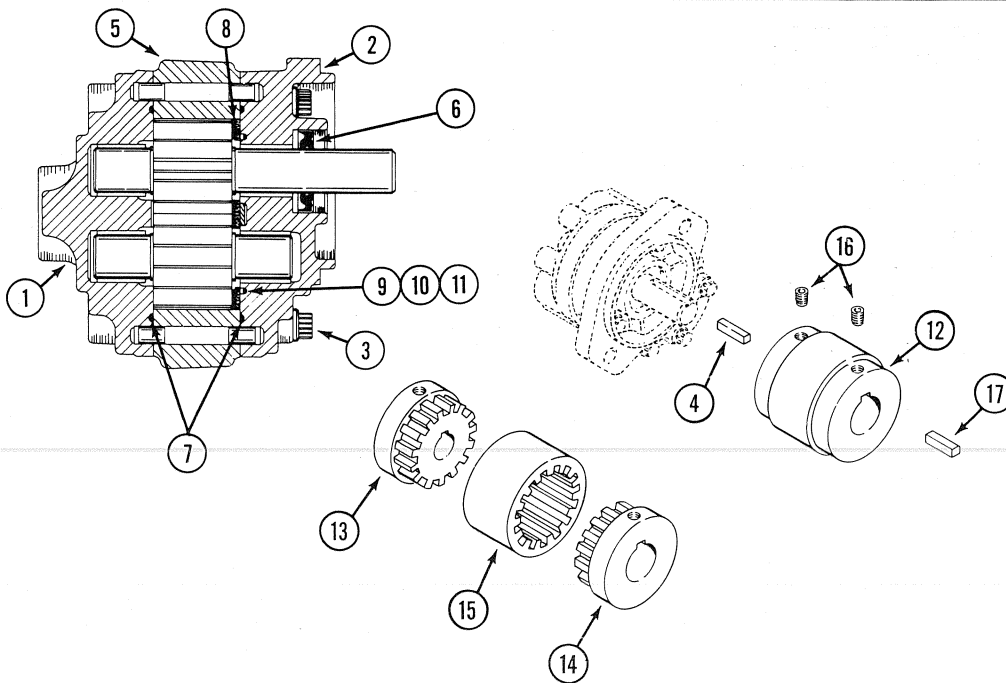
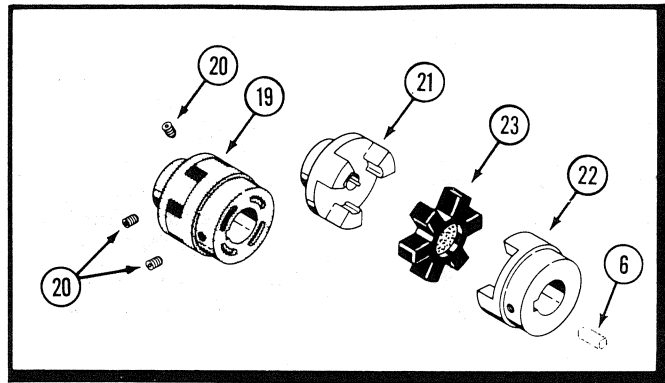
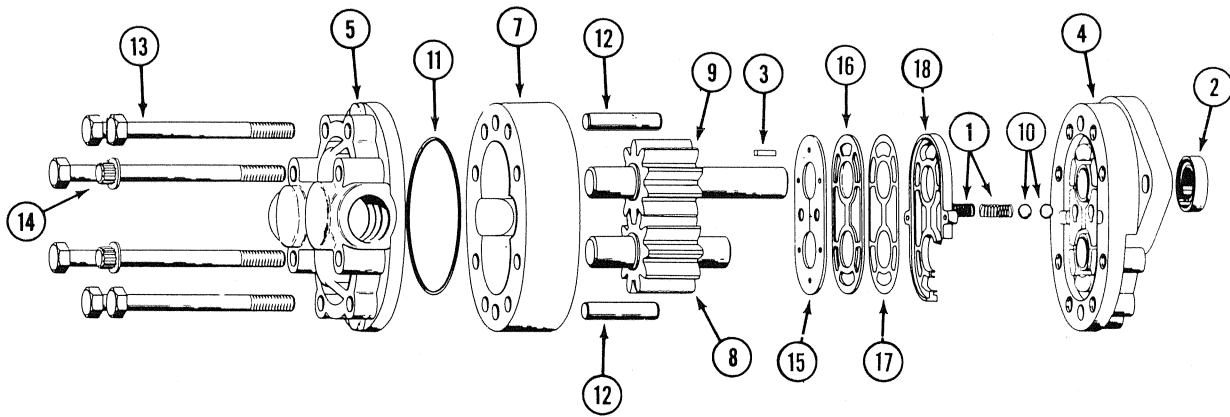


HYDRAULIC CONTROL VALVE (BUCKET)

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

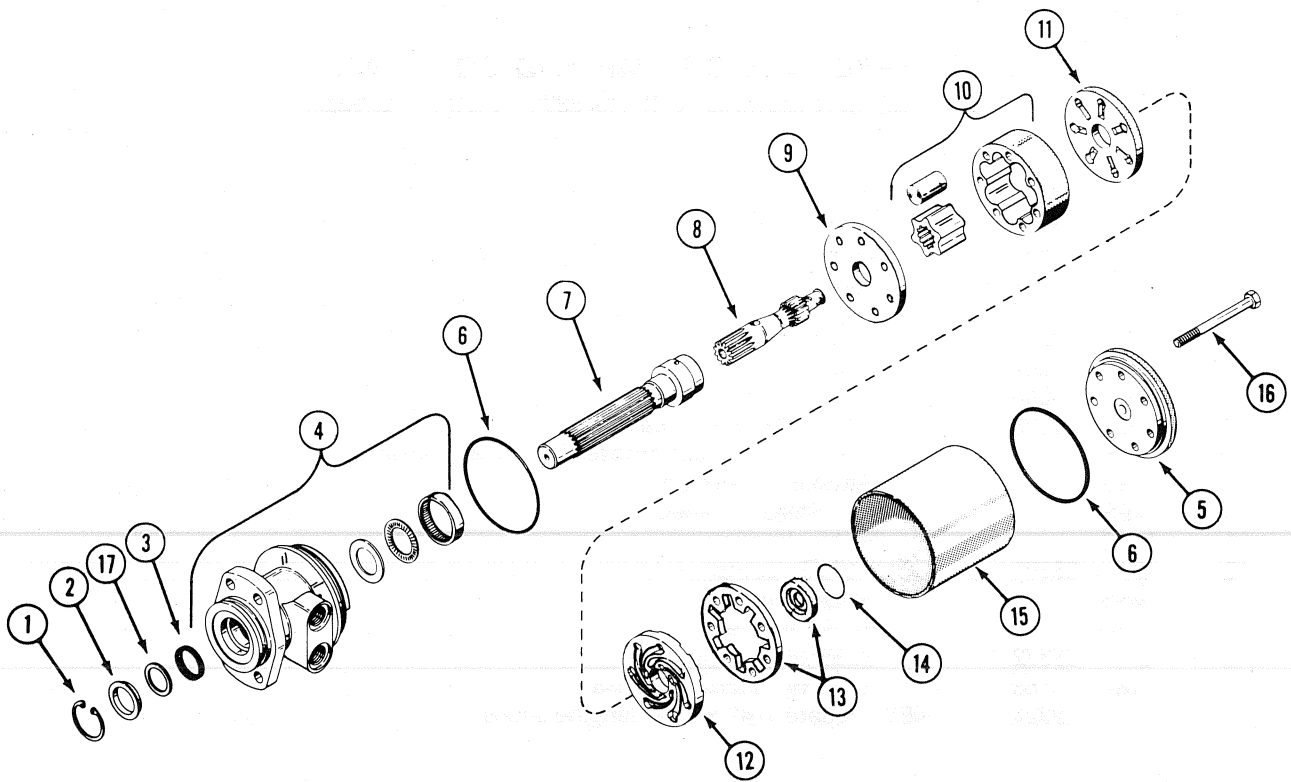
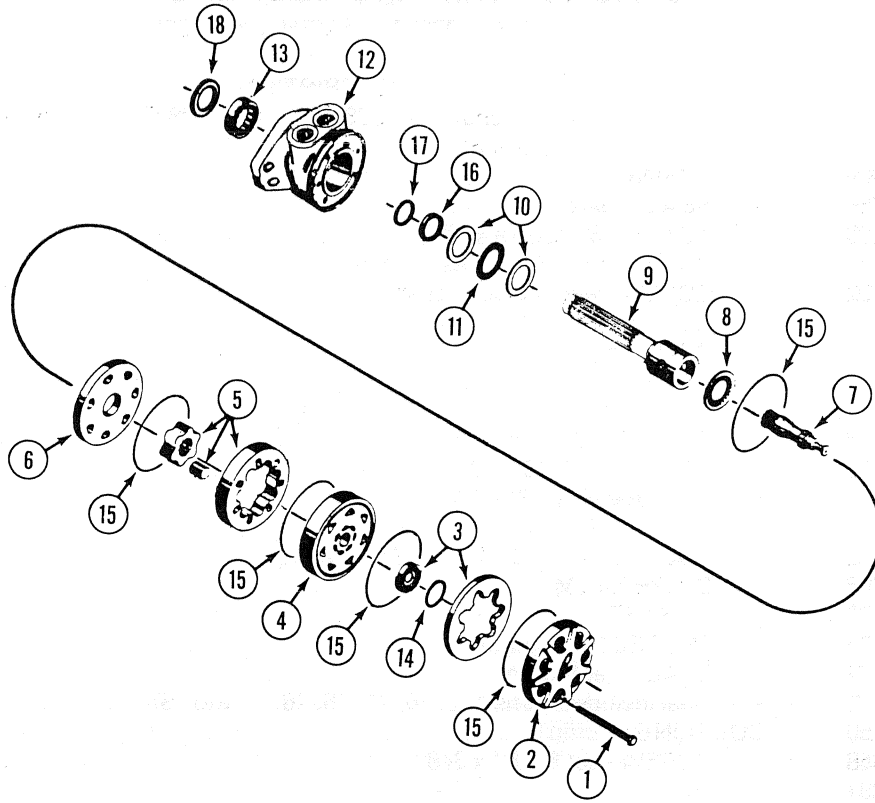
(Use before S/N: 648-14076874 - 648BH-14076822)

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

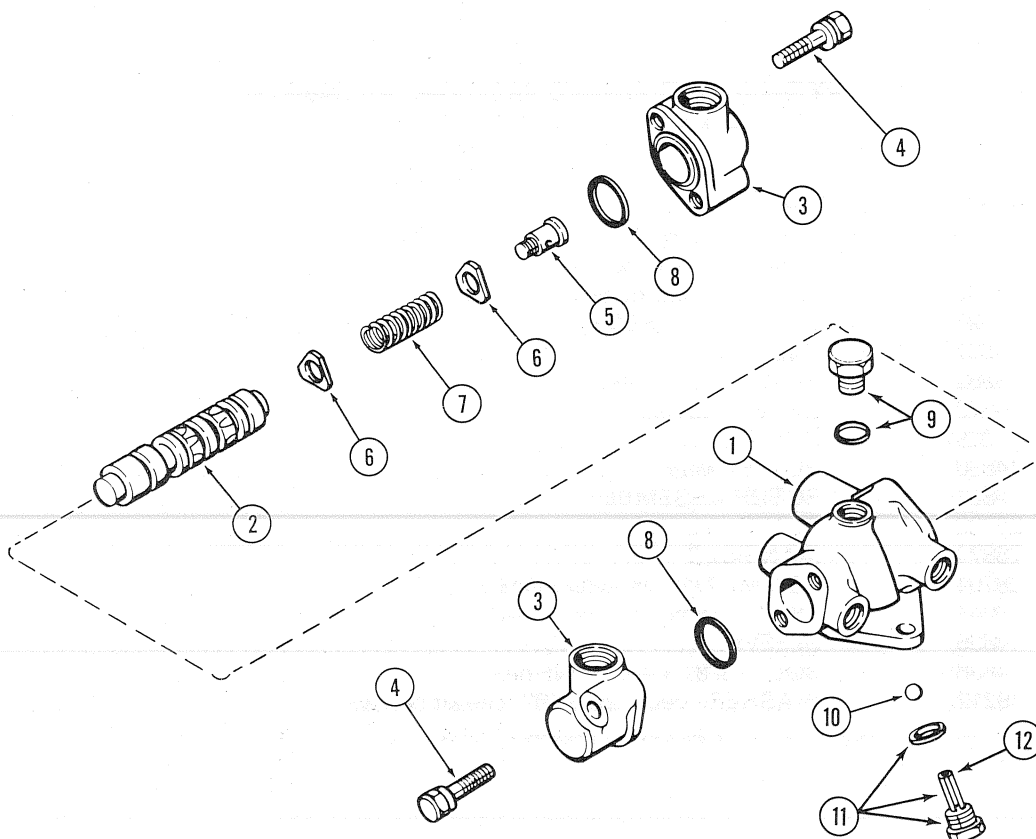
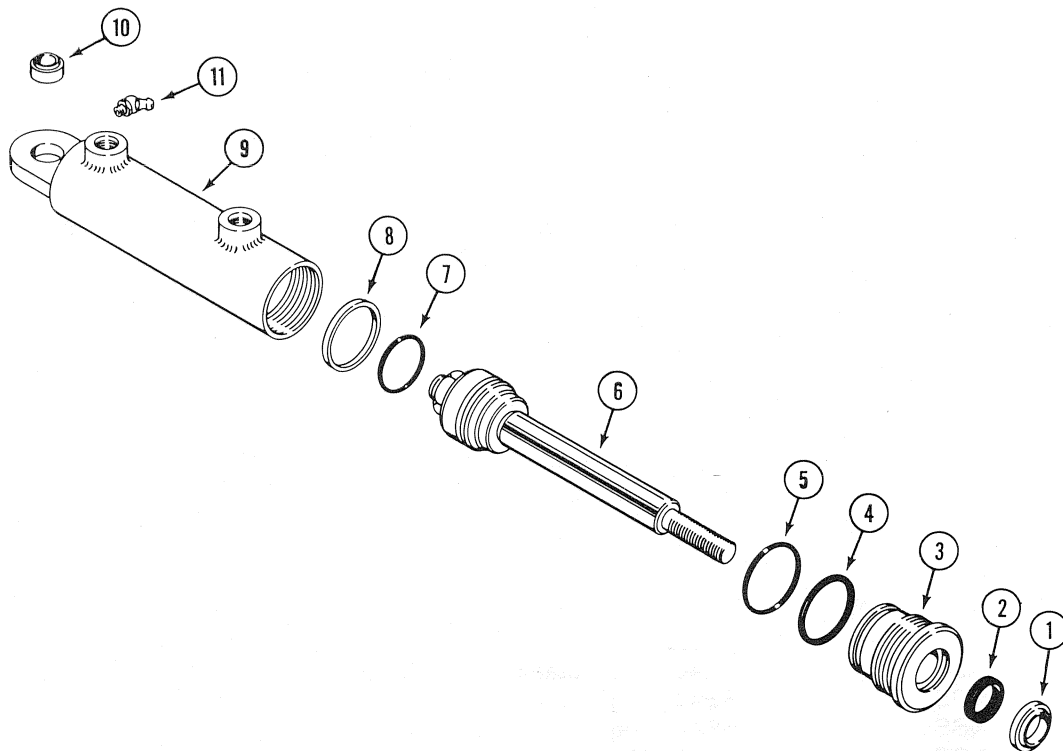
(Use S/N 14114835 and after 648 only)

REF.	PART NO.	DESCRIPTION	REQ'D
	C 30940	MOTOR - hydraulic	1
1	C 31327	BOLT - 3/8" - 24 x 4-5/8"	7
2	C 31309	COVER - end	1
3	C 31310	COMMUTATOR AND RING SET	1
4	C 31311	MANIFOLD	1
5	C 31313	ROTOR ASSEMBLY	1
6	C 31314	PLATE - wear	1
7	C 31316	LINK - drive	1
8	C 31317	BEARING - thrust	1
9	C 31318	SHAFT - coupling	7
10	C 31319	WASHER - thrust	2
11	C 31320	BEARING - thrust	1
12	C 31321	HOUSING - drive end	1
13	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



CYLINDER (POWER STEERING)

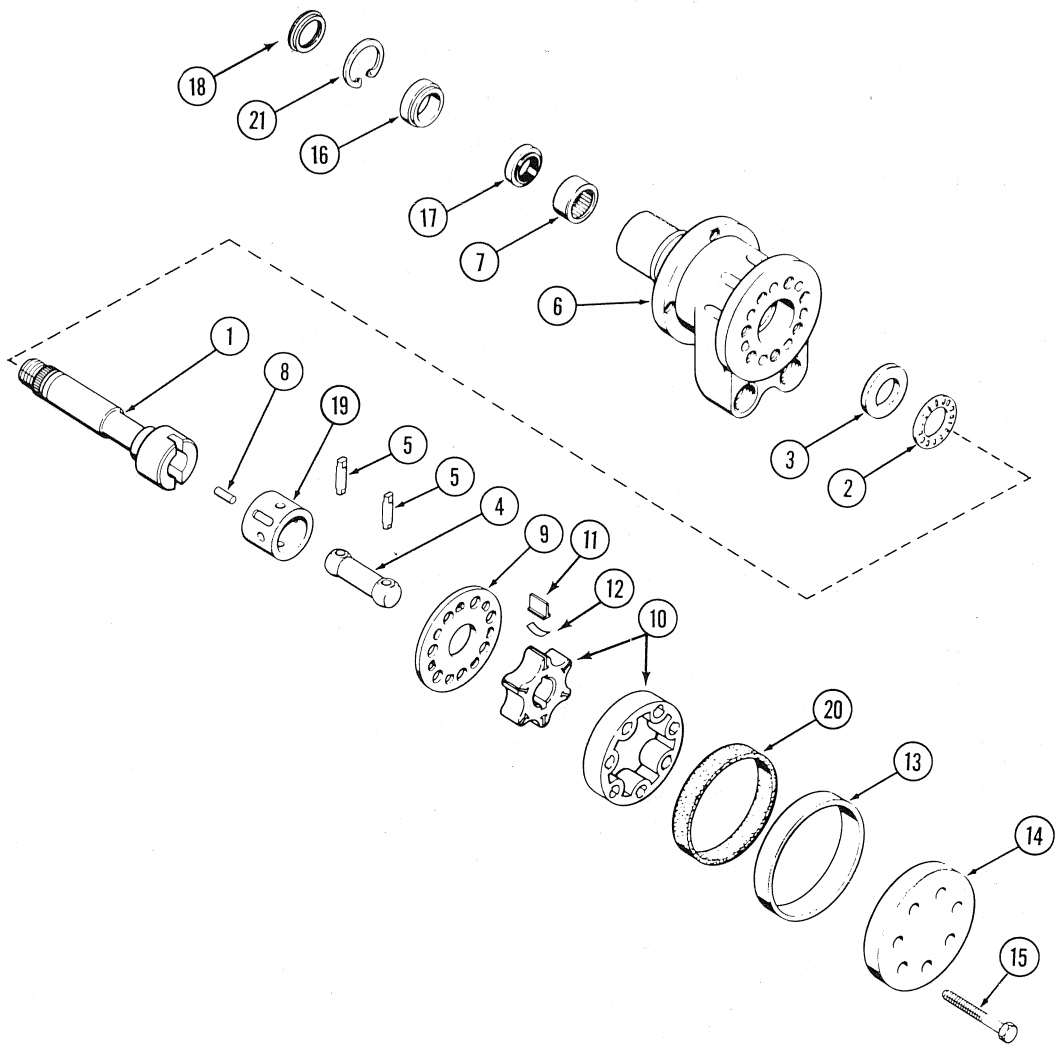
(Use before S/N 14076828)

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)

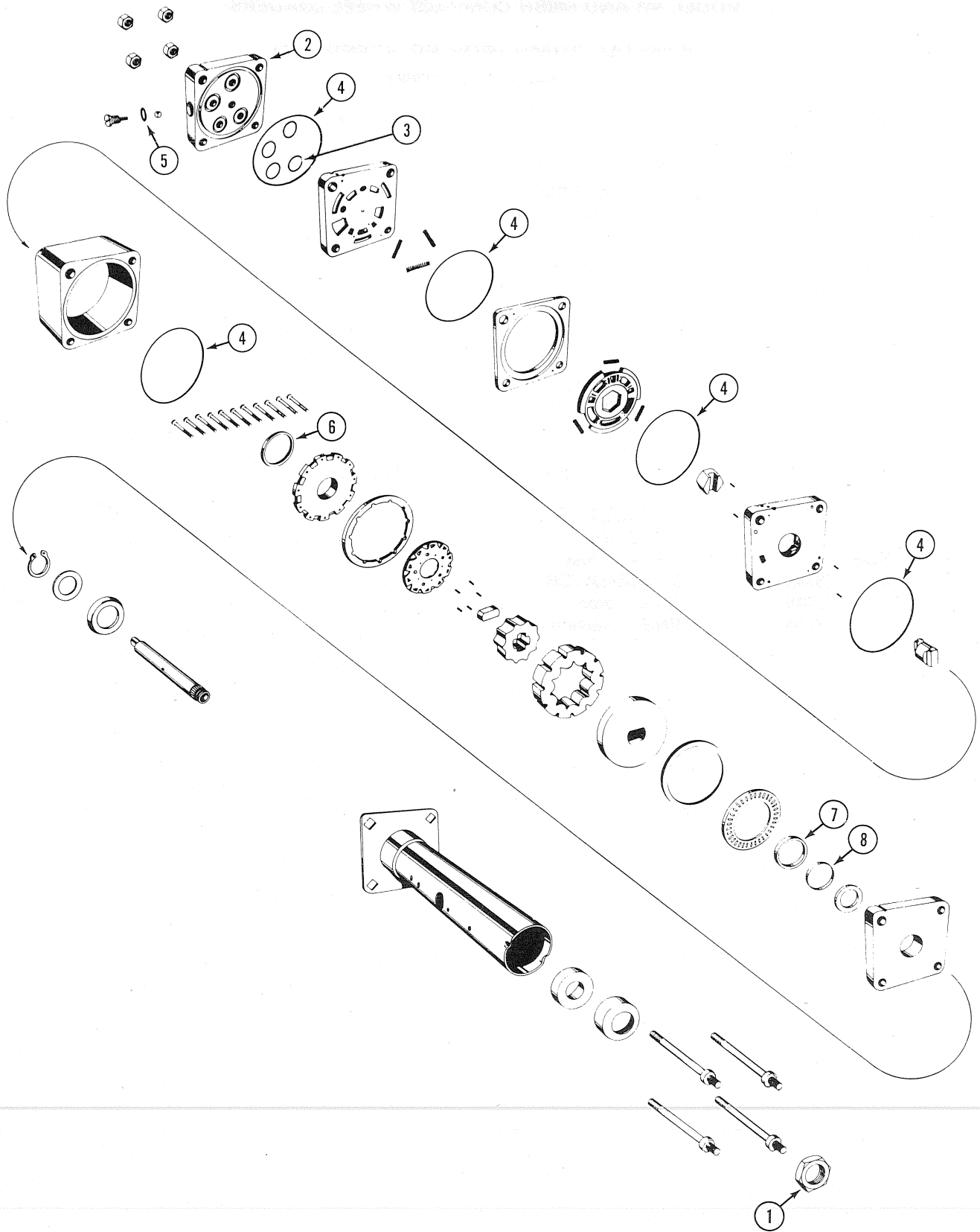
	C 28238	VALVE - control, steering	1
1	NSS	BODY - valve (use C28238 valve)	1
2	NSS	SPOOL - valve (use C28238 valve)	1
3	C 28771	CAP - end	2
4	13- 632	BOLT - end cap	4
5	C 28770	SCREW - centering	1
6	C 28768	WASHER	2
7	C 28769	SPRING - centering	1
8	C 28777	SEAL - end cap	2
9	218- 5154	PLUG - top (includes 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



MANUAL PUMP (POWER STEERING)

(Use before S/N 14076821)

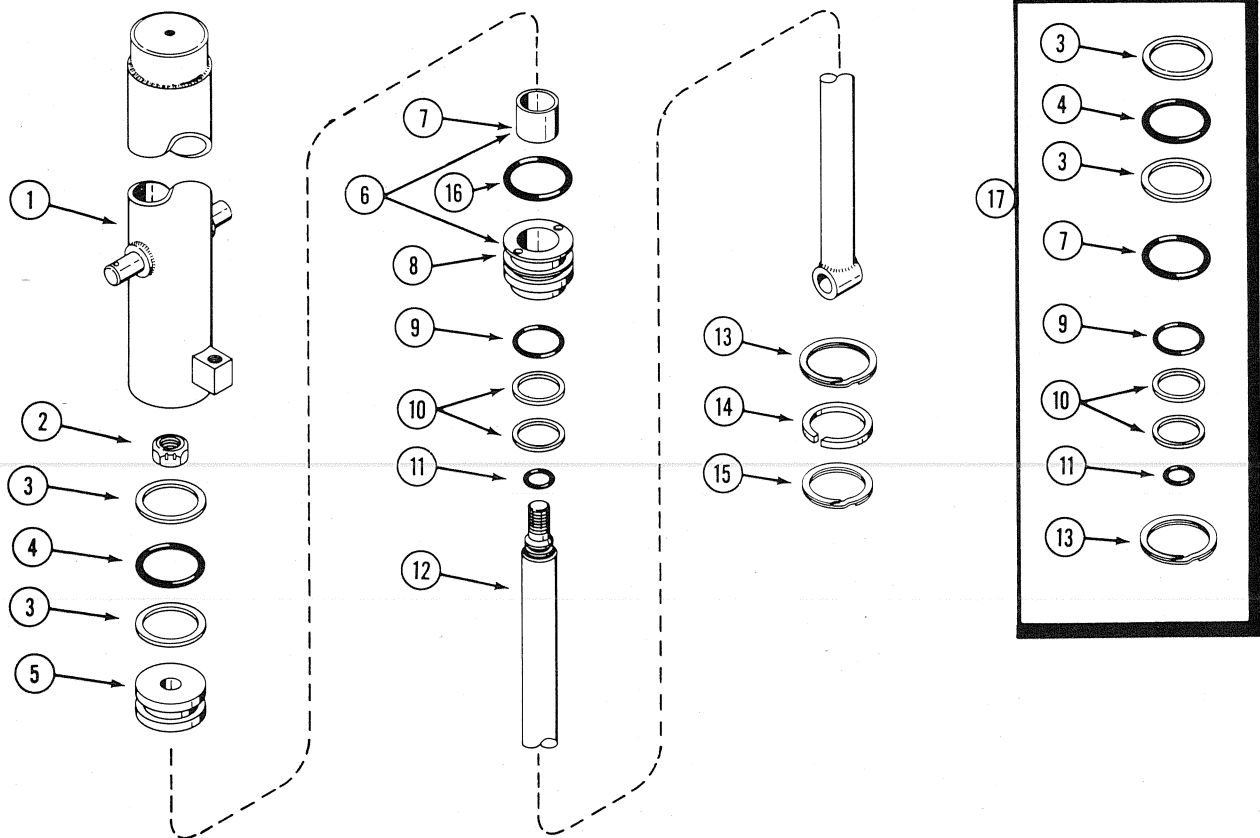
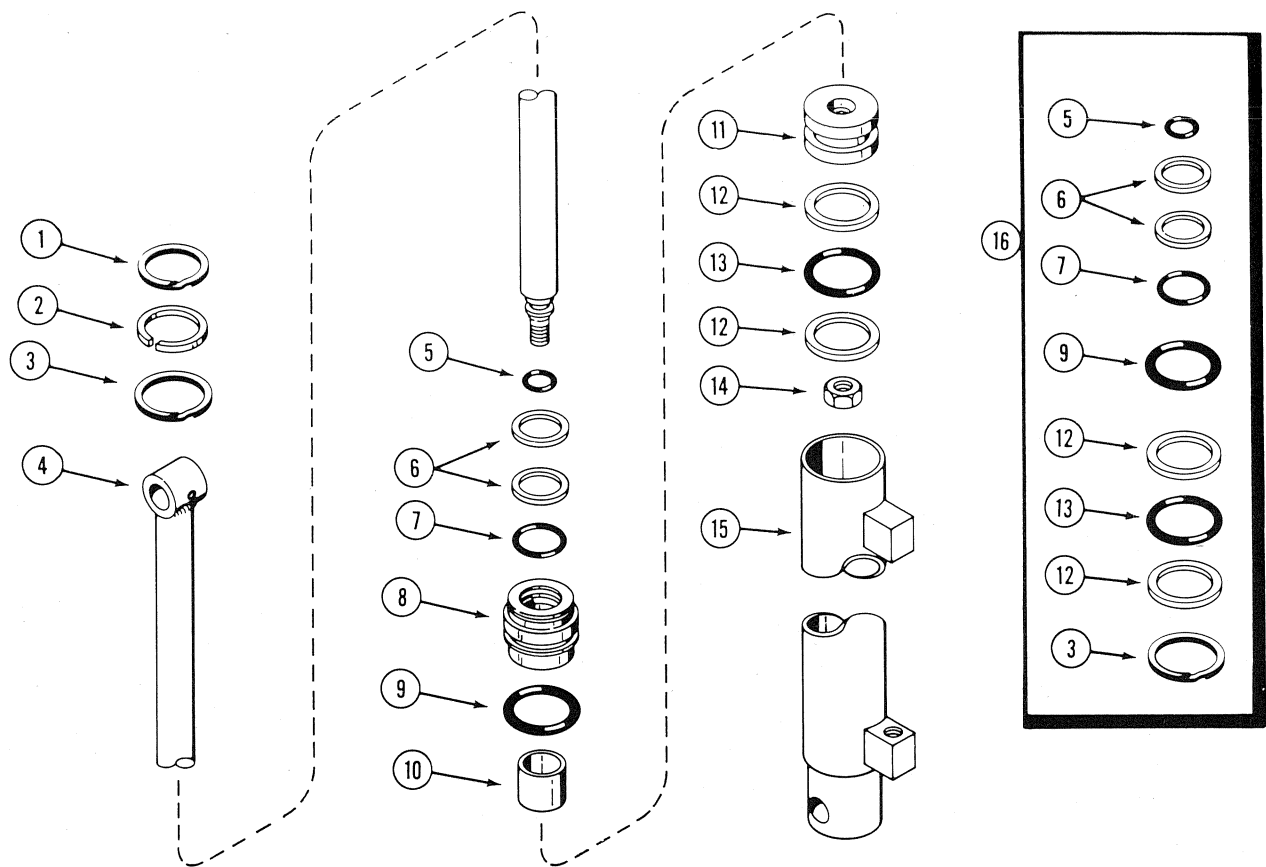
REF.	PART NO.	DESCRIPTION	REQ'D
	C 26002	PUMP - manual	1
1	C 28767	SHAFT - steering	1
2	C 28675	BEARING - thrust	1
3	C 28773	RACE - bearing	1
4	C 28774	LINK - rotor drive	1
5	C 28775	PIN - link	1
6	NSS	BODY - pump (use C26002 pump)	1
7	C 28223	BEARING - shaft	1
8	C 28772	PIN	1
9	C 28748	SPACER - rotor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

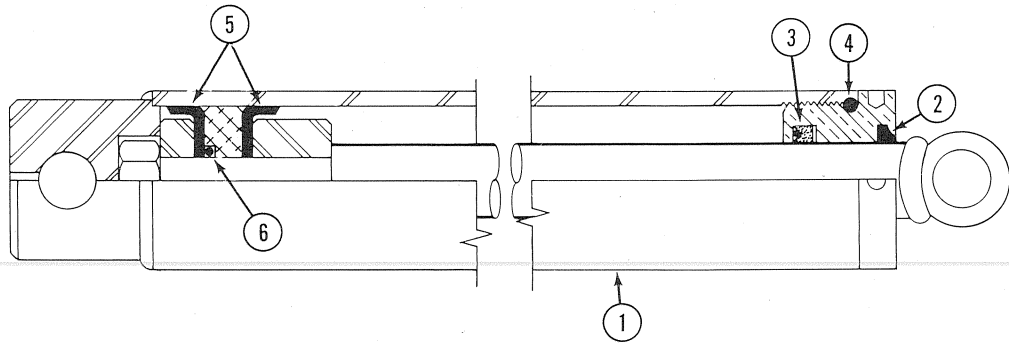
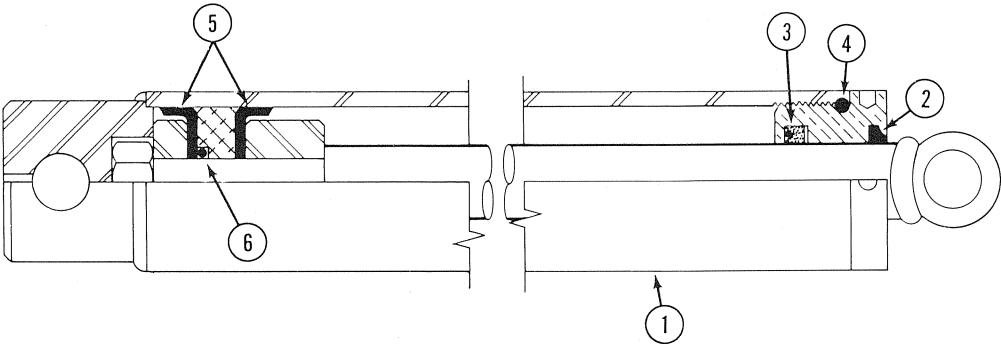
(use before S/N 14063829)

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



CYLINDER - LIFT ARM

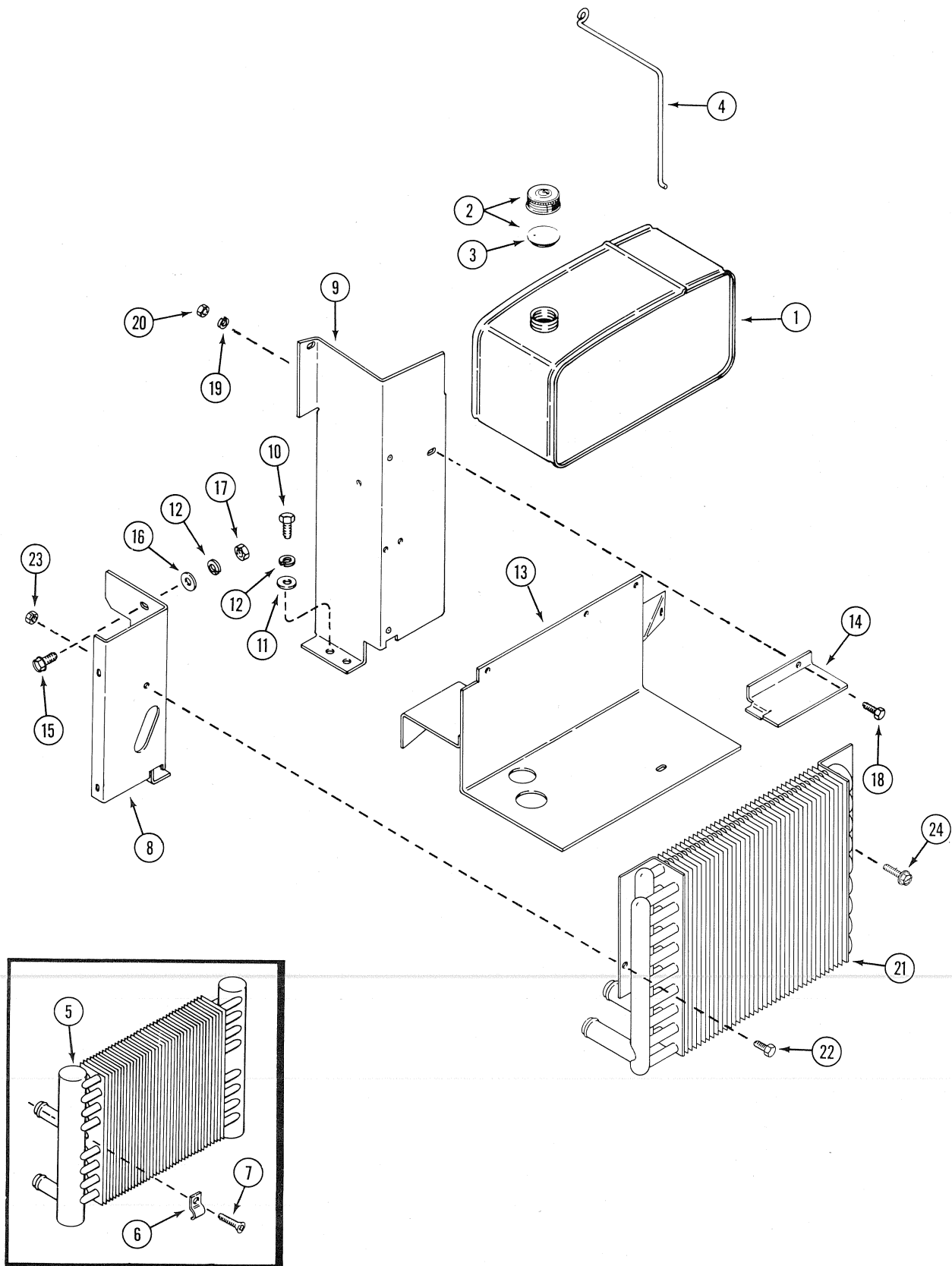
(use S/N 14063829 and after)

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

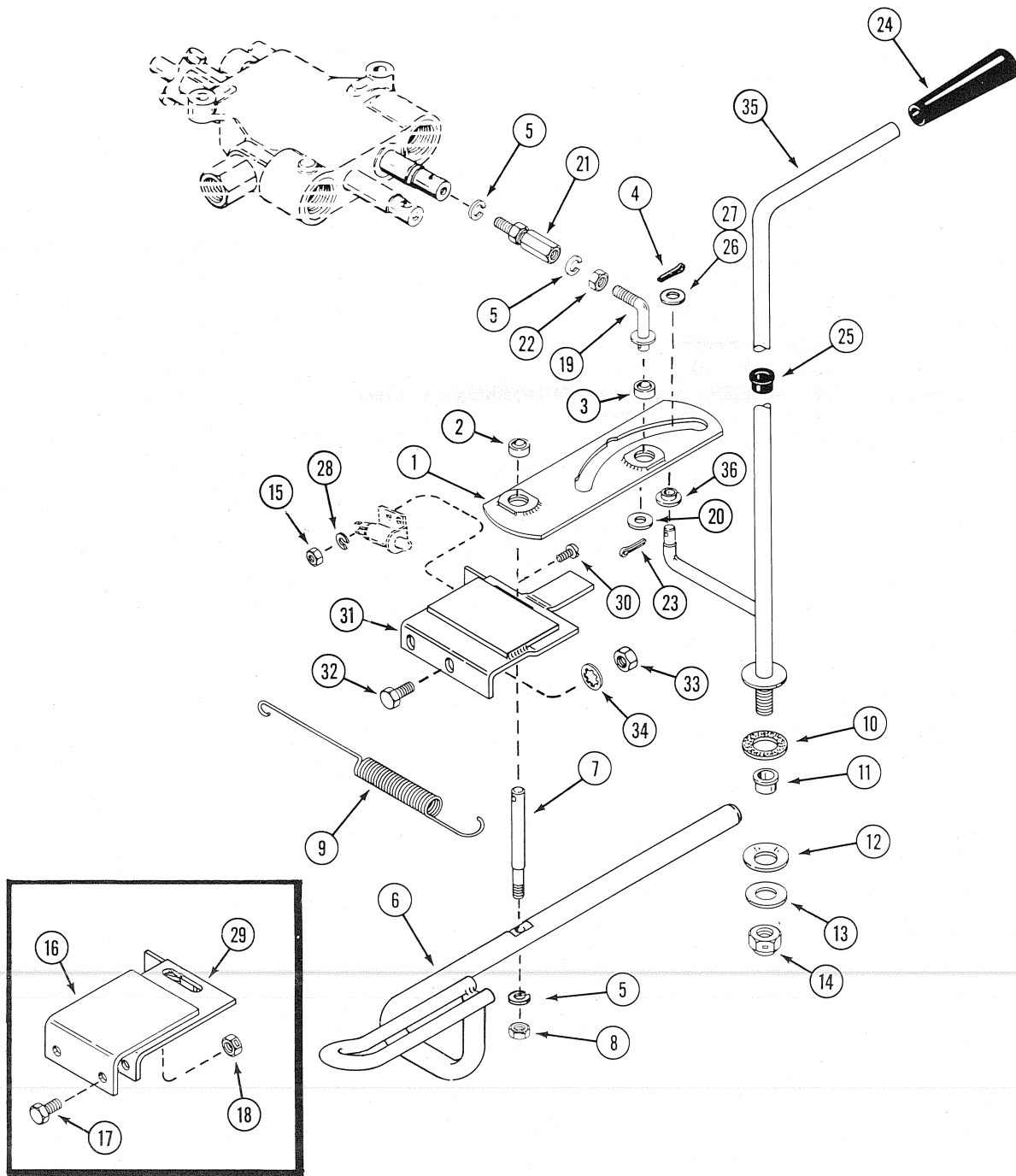
(use S/N 14063831 and after)

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



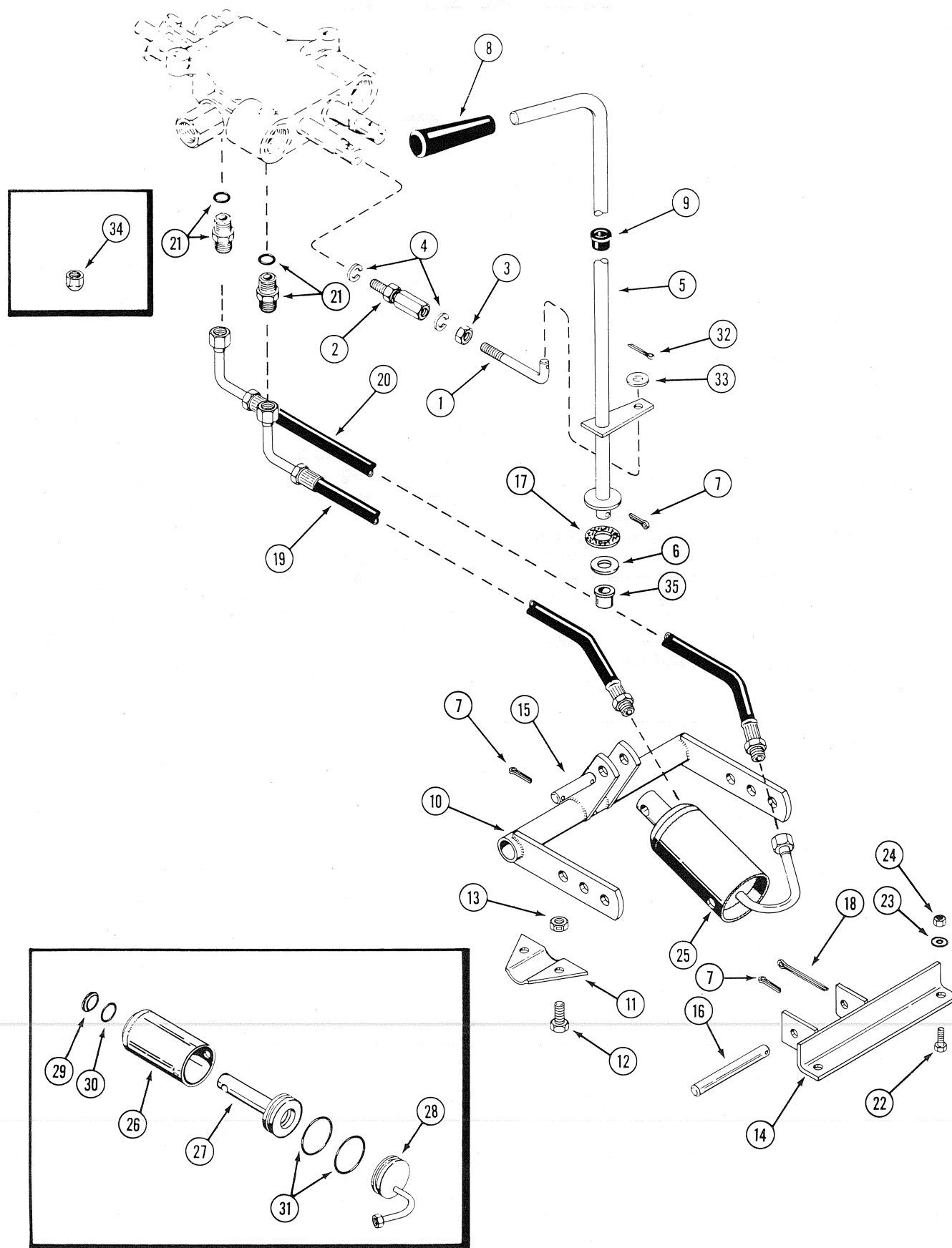
HYDRAULIC RESERVOIR AND HEAT EXCHANGER MOUNTING

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



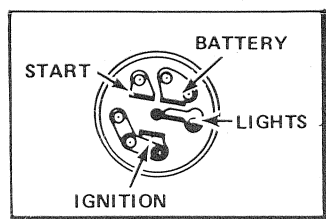
TRAVEL CONTROL LINKAGE

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

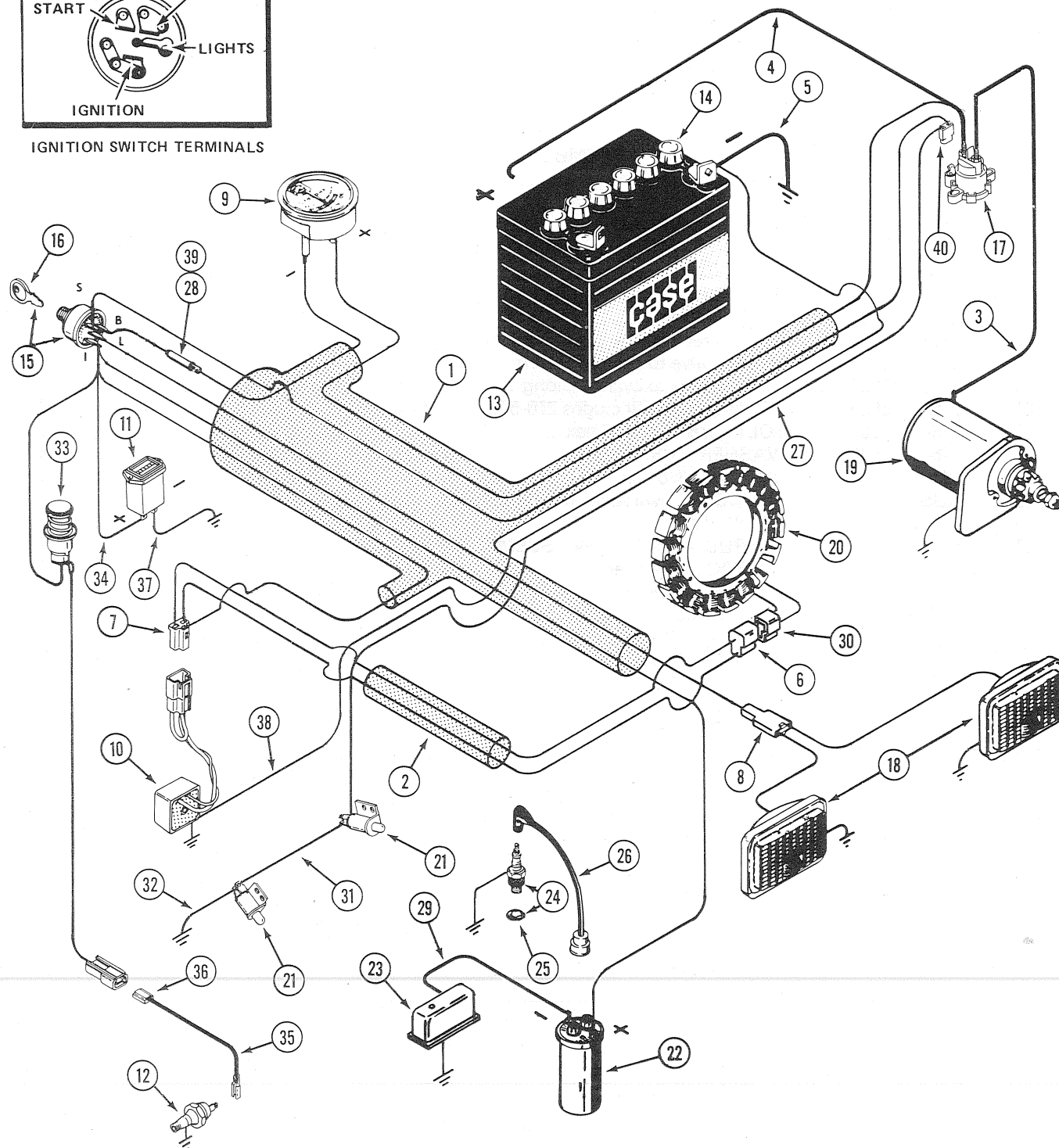


HYDRAULIC LIFT (648)

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	CROSS 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
	C 30054	KIT - seal, cylinder	1
29	N S S	SEAL	1
30	N S S	"O" RING	1
31	N S S	"O" RING	2
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

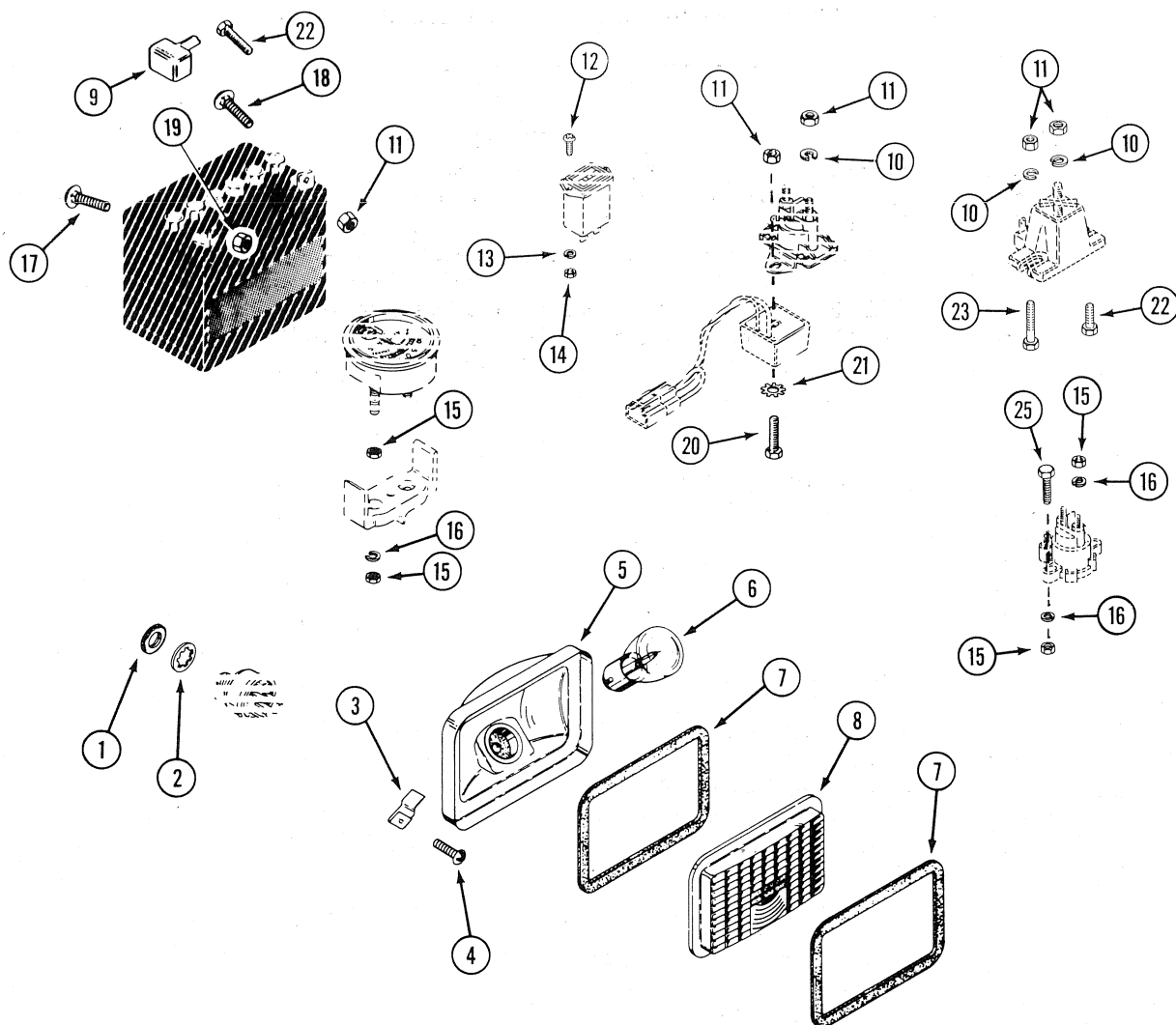


IGNITION SWITCH TERMINALS



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 WASHES - 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



BACKHOE DISCONNECTED

PUMP SUPPLY

TRACTOR

POWER BEYOND

RETURN

BACKHOE CONNECTED

TRACTOR

POWER BEYOND

PUMP SUPPLY

RETURN

[illegible]

CASE

CASE

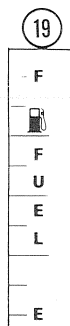
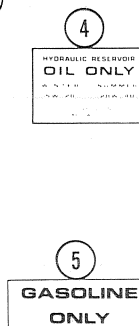
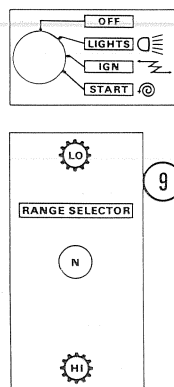
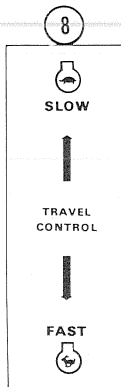
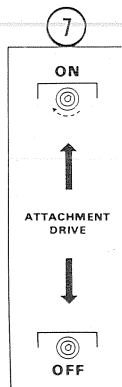
648 ⁽¹⁷⁾ **ny load**

hyload

16 **hydriV**



648



⚠ CAUTION

KEEP ALL SHIELDS IN PLACE.
BEFORE LEAVING OPERATOR'S POSITION:
SHIFT TRANSMISSION TO NEUTRAL
SET PARKING BRAKE
DISENGAGE ATTACHMENT CLUTCH
SHUT OFF ENGINE
REMOVE IGNITION KEY
WAIT FOR ALL MOVEMENT TO STOP
BEFORE SERVICING MACHINE.
KEEP PEOPLE AND PETS A SAFE
DISTANCE AWAY FROM MACHINE.

DECALS (English)

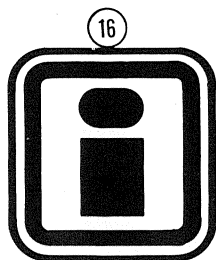
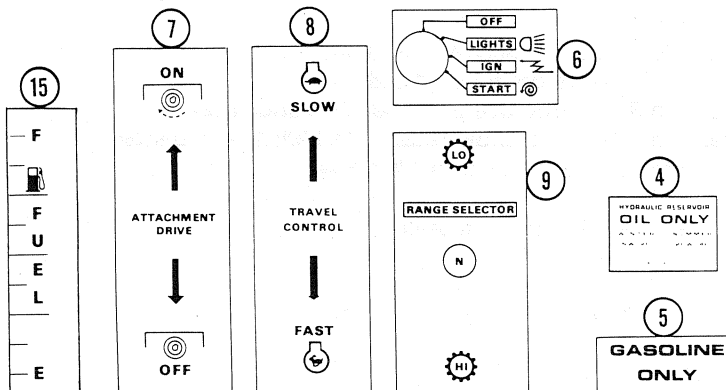
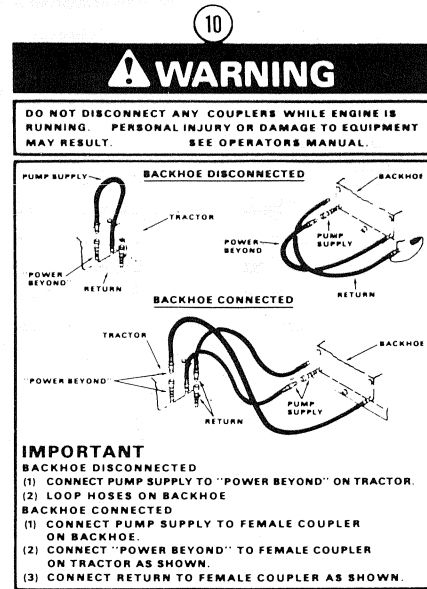
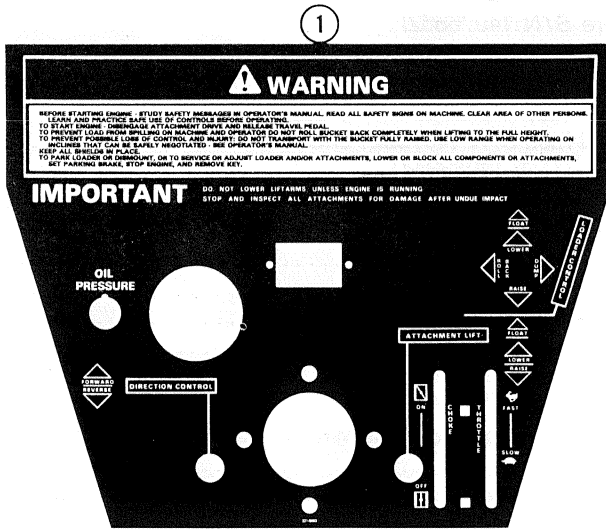
(Use before S/N 14076862)

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.



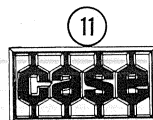
12

INGERSOLL

2

648

hyload®



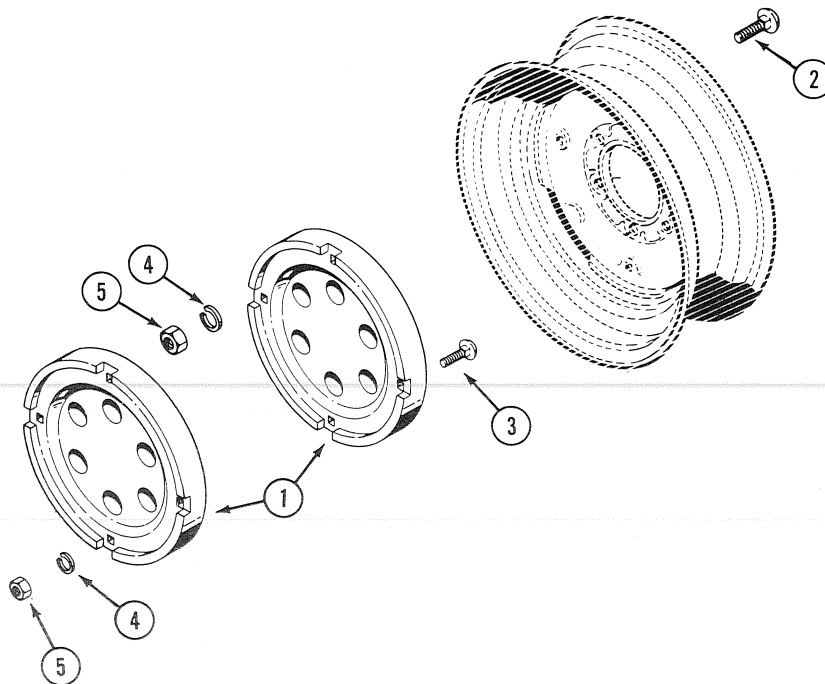
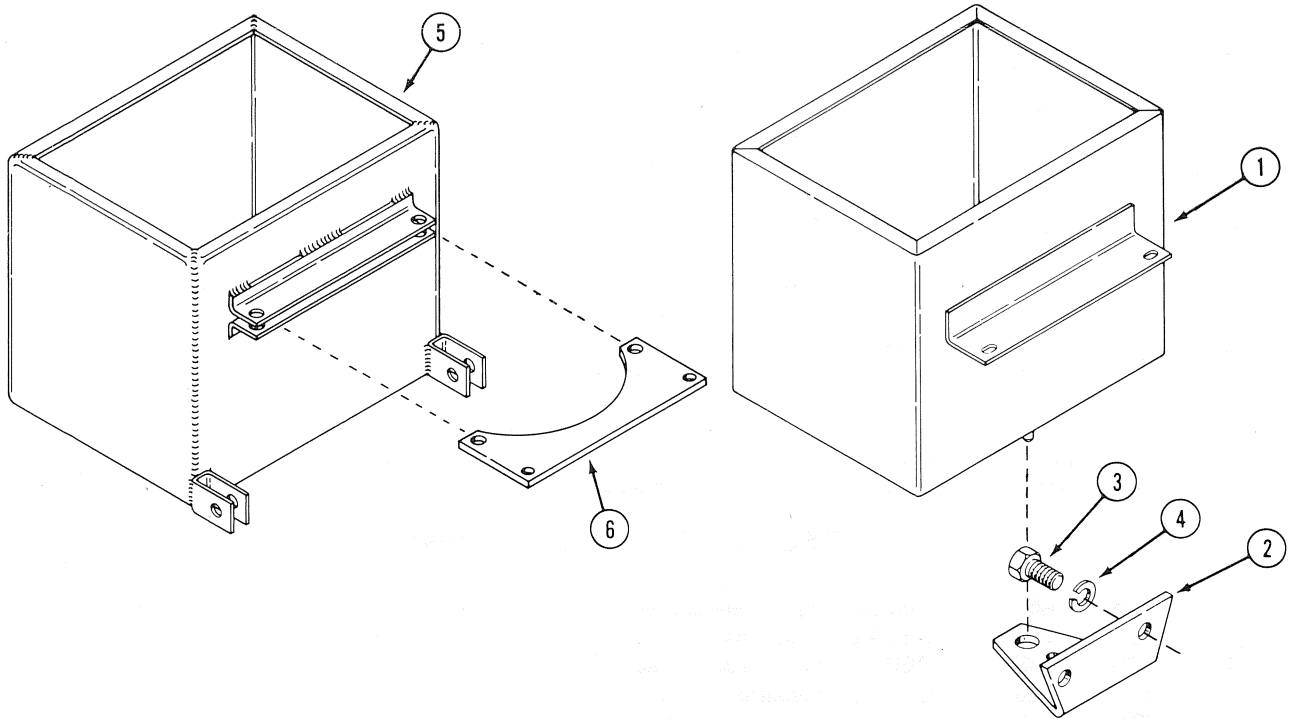
DECALS (English)

(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



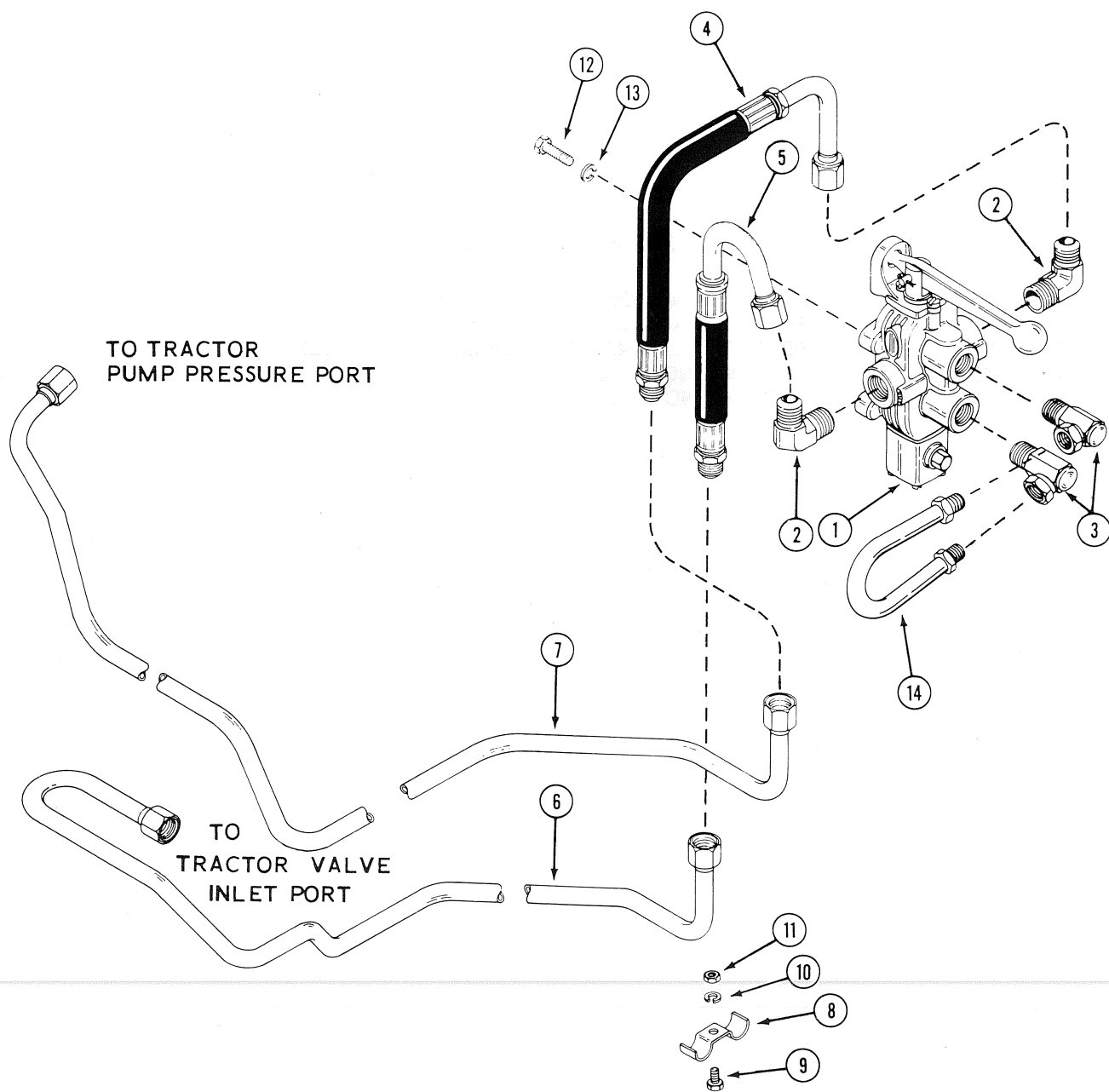
WEIGHT BOX AND DRAW BAR

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

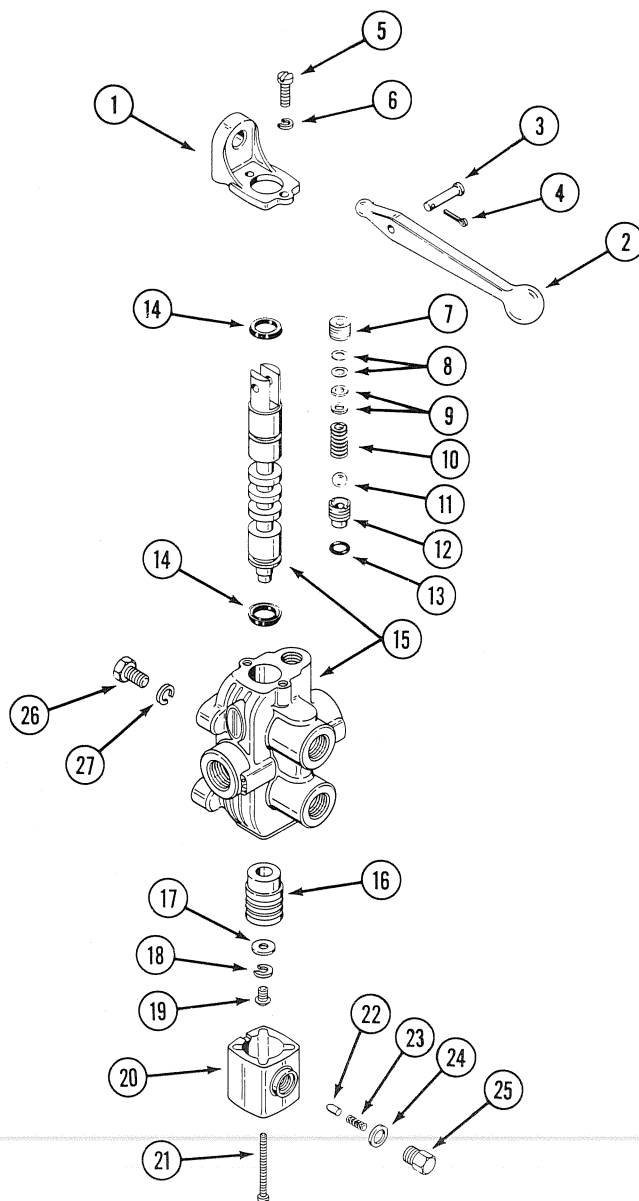
1	NSS	WEIGHT - wheel (Order as machinery item)	4
2	111- 530	BOLT - 1/2" x 2-1/2" NC round head, square neck ZP	4
3	111- 531	BOLT - 1/2" x 2-3/4" NC round head, square neck ZP	4
4	92- 8	LOCK WASHER - 1/2"	8
5	129- 105	NUT - 1/2" NC hex	8

ILLUSTRATED AS VIEWED FROM
LEFT REAR OF TRACTOR



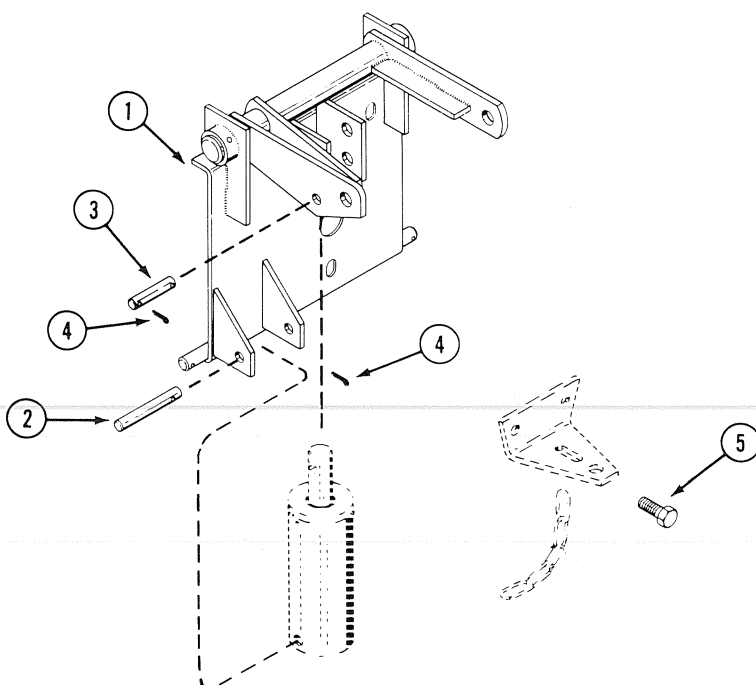
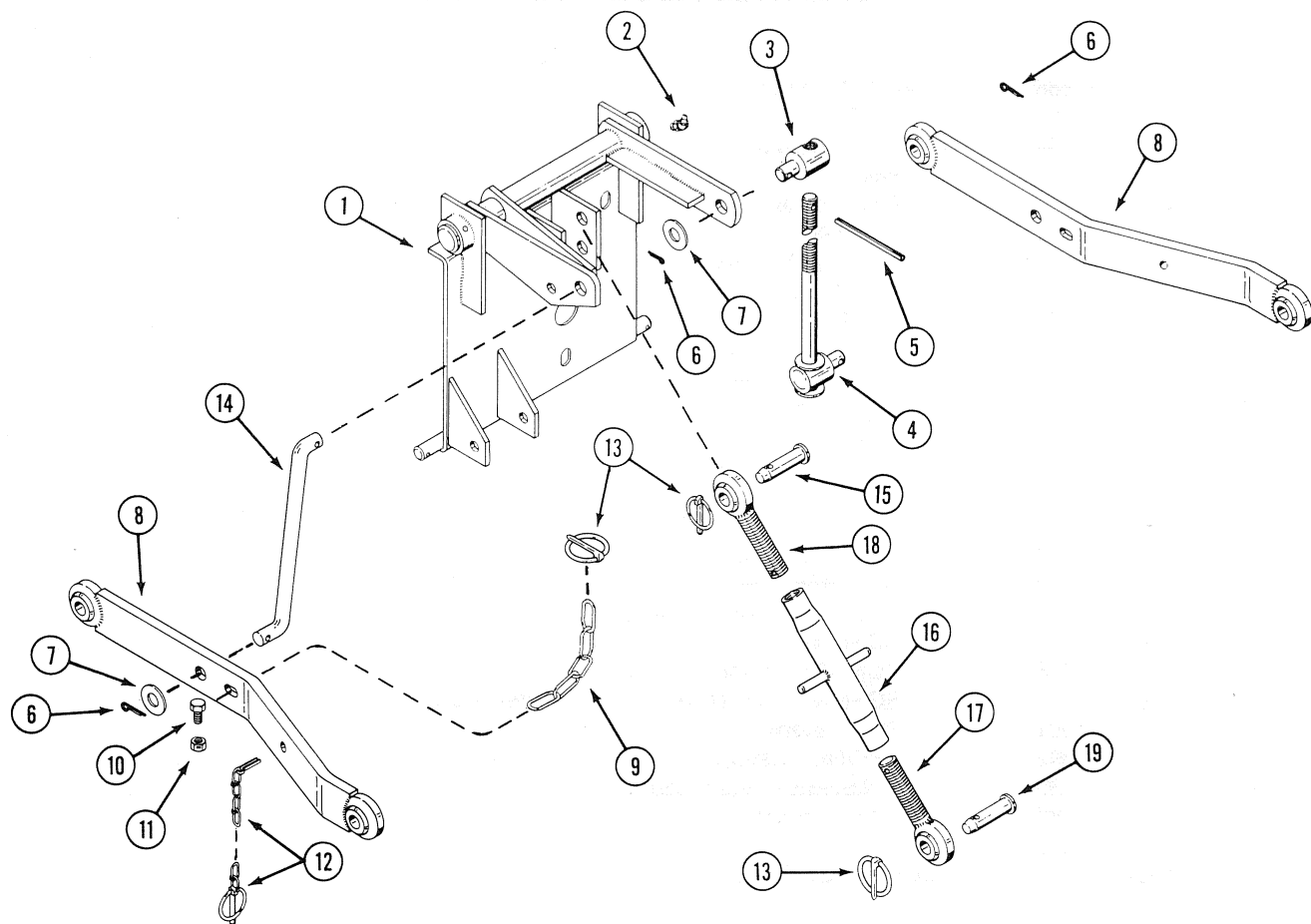
MODEL LT16 HYDRAULIC PTO KIT

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



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



LT26 THREE POINT HITCH

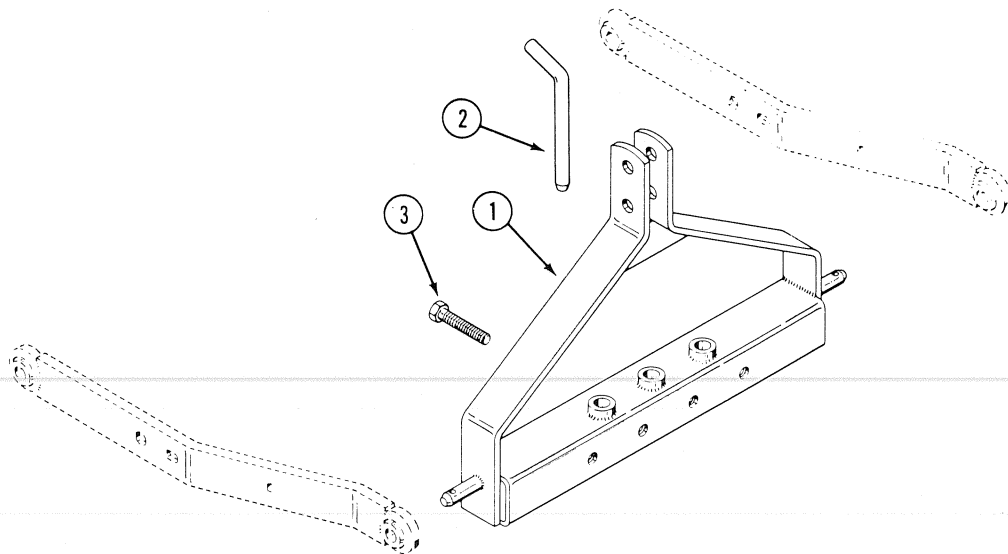
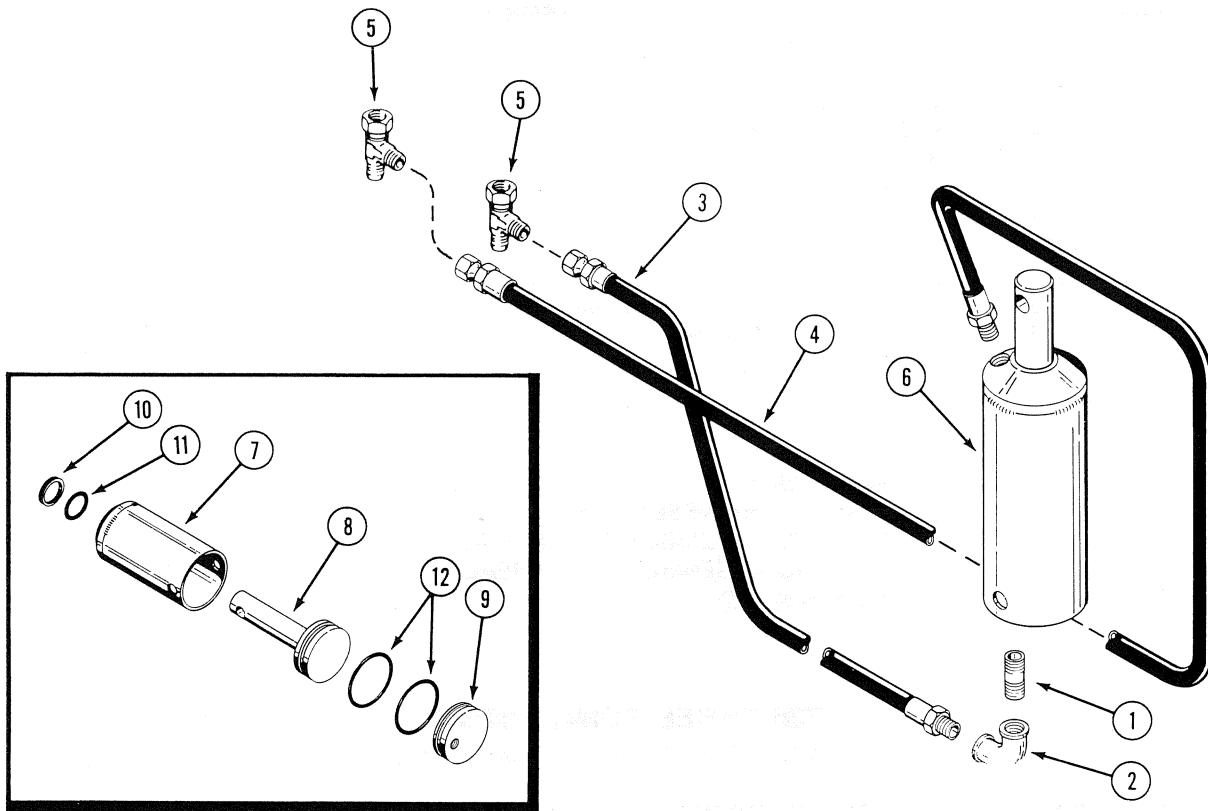
(FRAME, LIFT RODS AND ARMS)

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

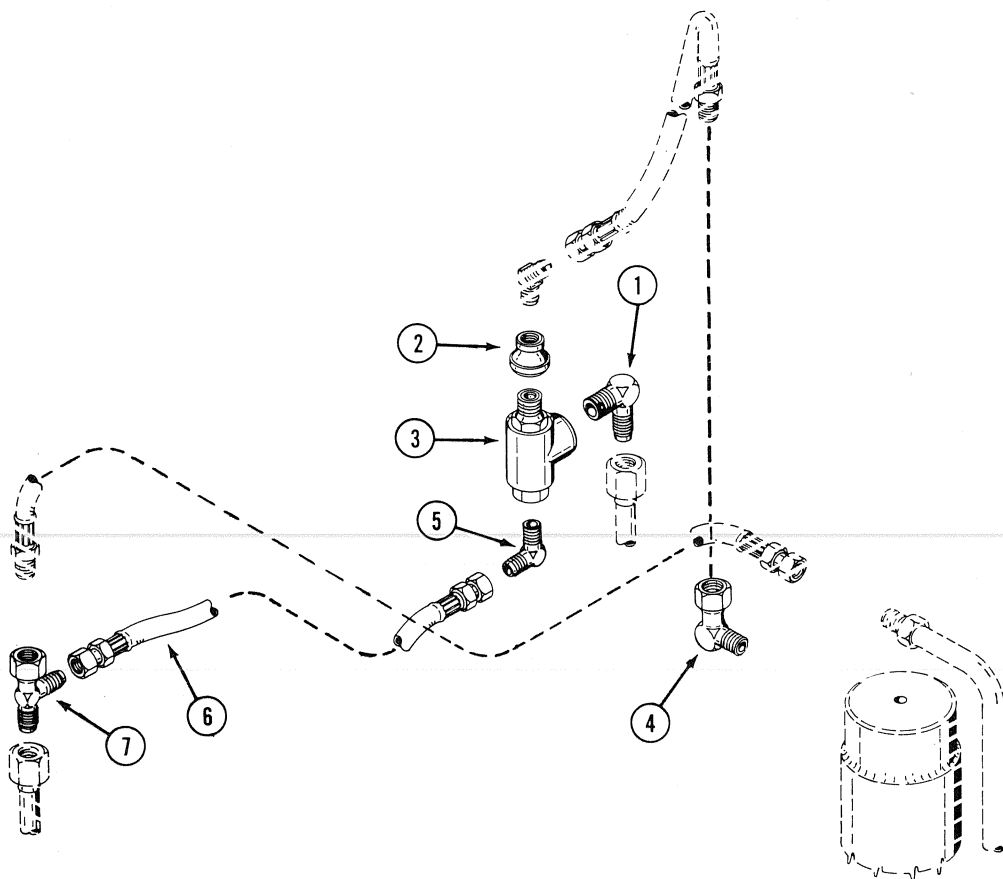
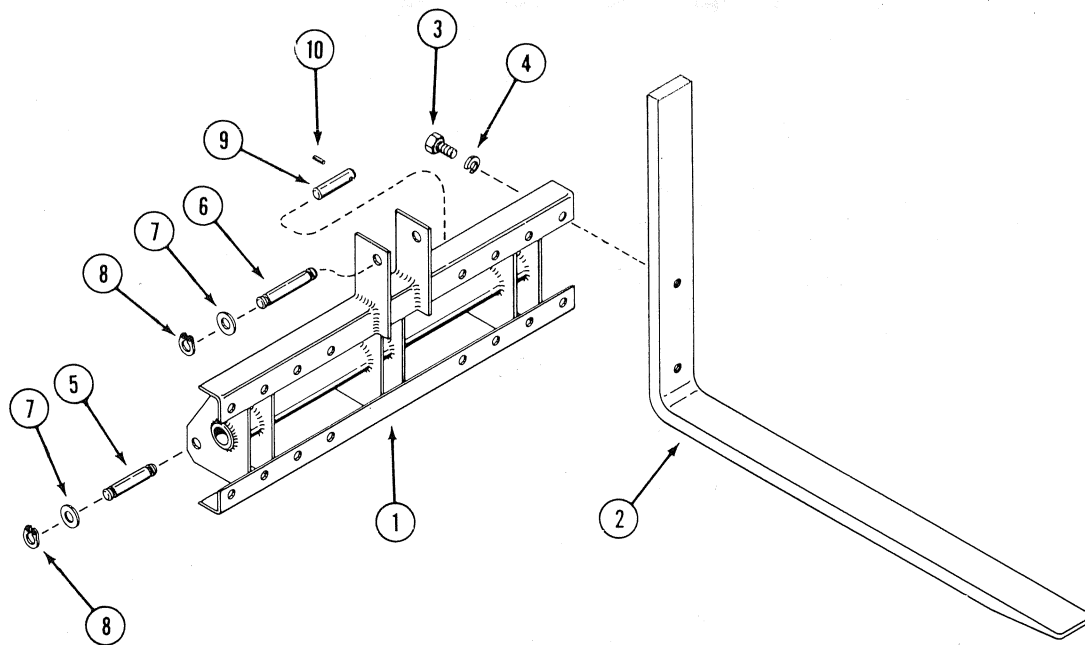
(HYDRAULIC CONNECTIONS AND COMPONENTS)

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

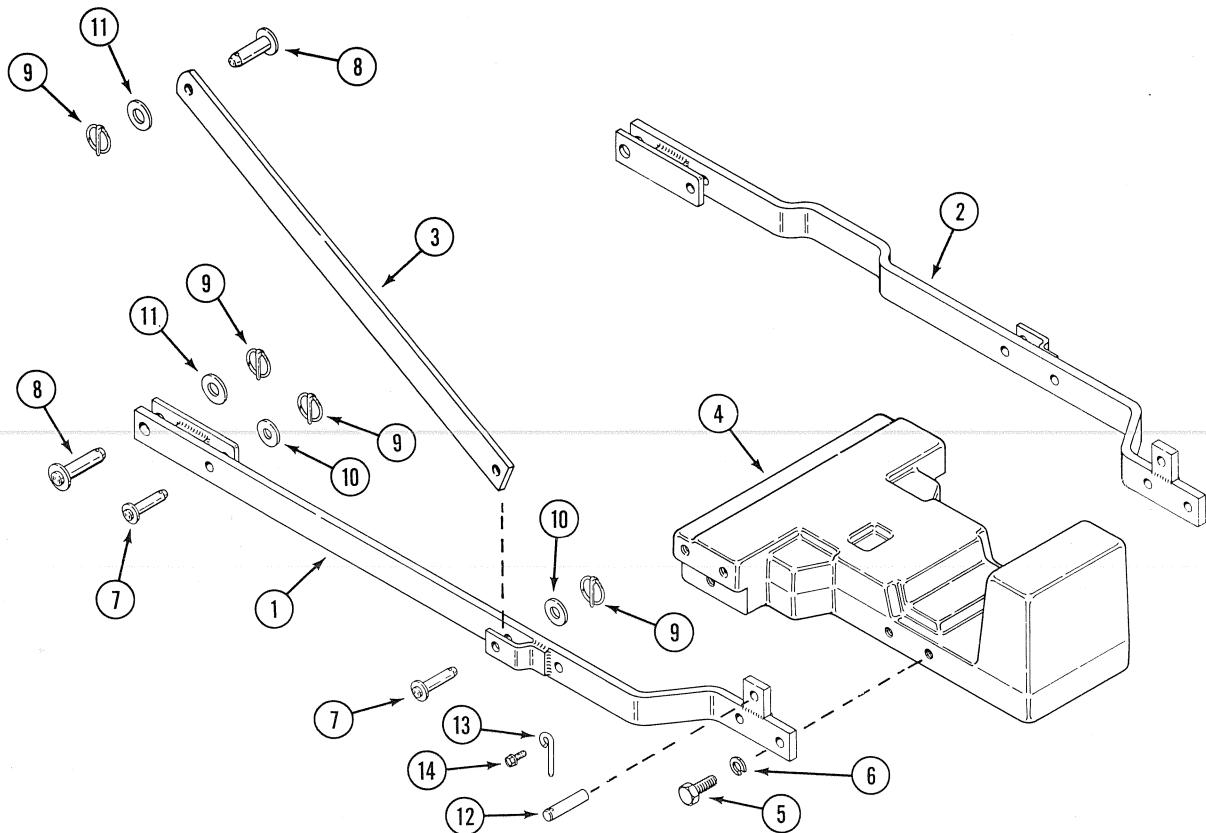
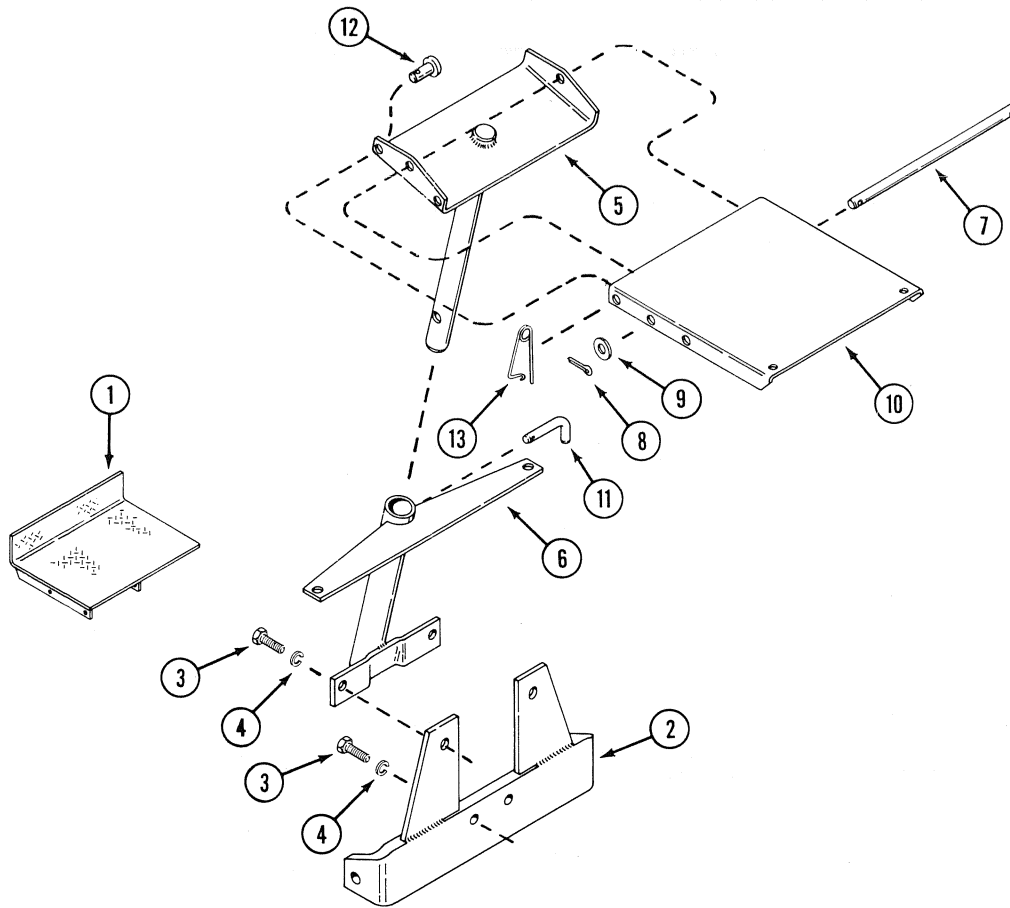


LL20 FORK LIFT

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

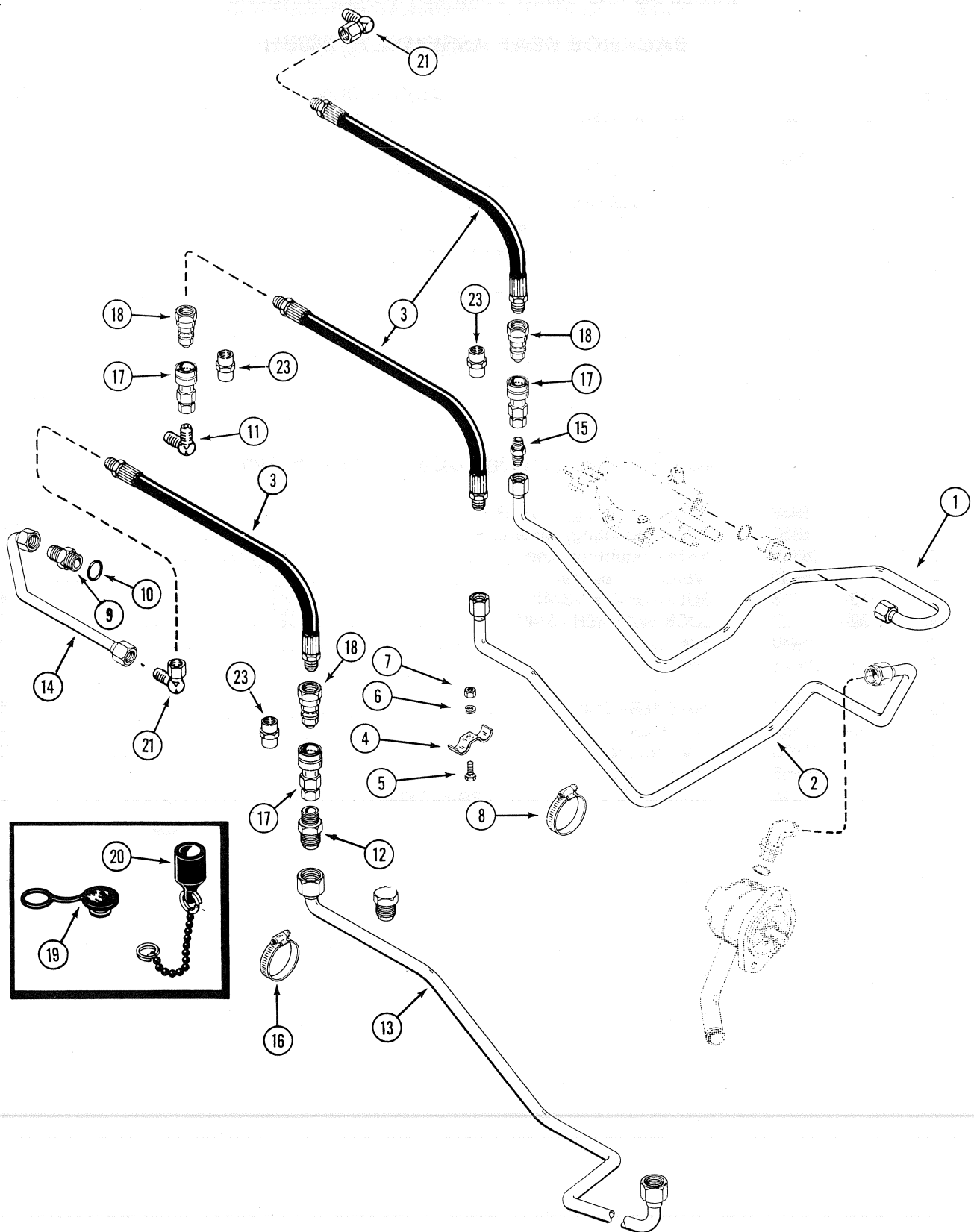


BACKHOE SEAT ASSEMBLY - 648BH

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 - 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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C11545	25	3	C15389	83	8	C18154	71	19
C11886	85	24	C15389	95	4	C18155	71	20
C11887	85	25	C15410	31	9	C18175	43	5
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C14728	25	3	C17641	81	1	C20109	21	1
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