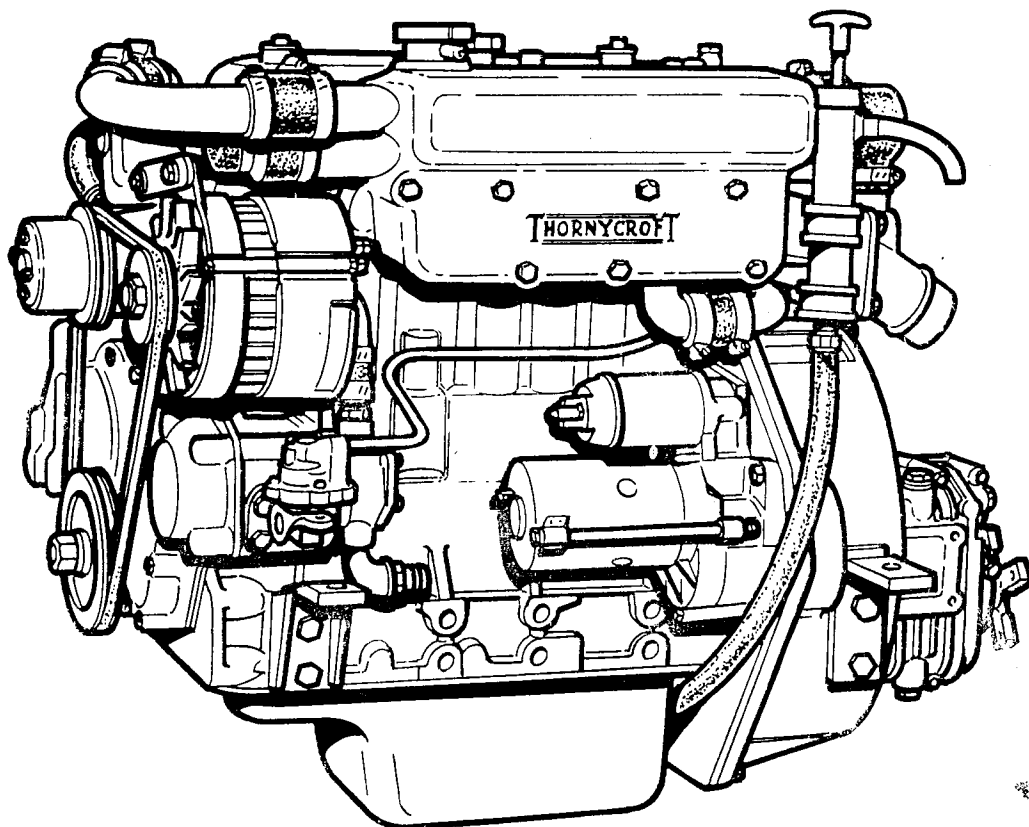


HORNYCROFT

MARINE ENGINES

ILLUSTRATED PARTS LIST



TYPE 60 & 80 ENGINES

THORNYCROFT

Introduction

The purpose of this Illustrated Spare Parts Manual is to enable the operator of the Thornycroft 60 and 80 type engines to easily identify replacement parts.

Due to our policy of continuous improvement and specific engine applications, it is imperative that ALL ORDERS AND OR ENQUIRIES FOR ENGINE SPARES IS ACCOMPANIED BY THE ENGINE NUMBER.

Technical Publications Department
Thornycroft Engines
PO Box 2
Hurst Lane
Tipton
West Midlands DY4 9AD
England

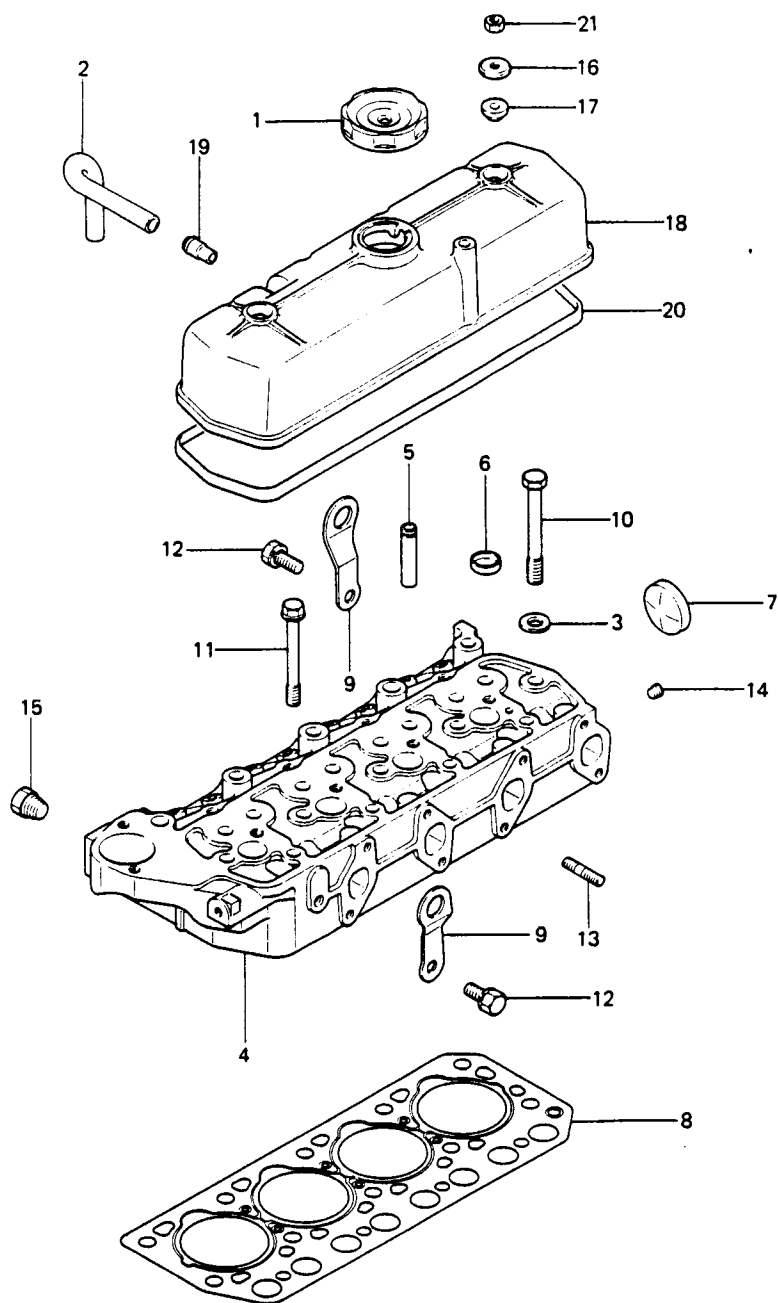
Phone: 021-522-2757


Telex: 338205

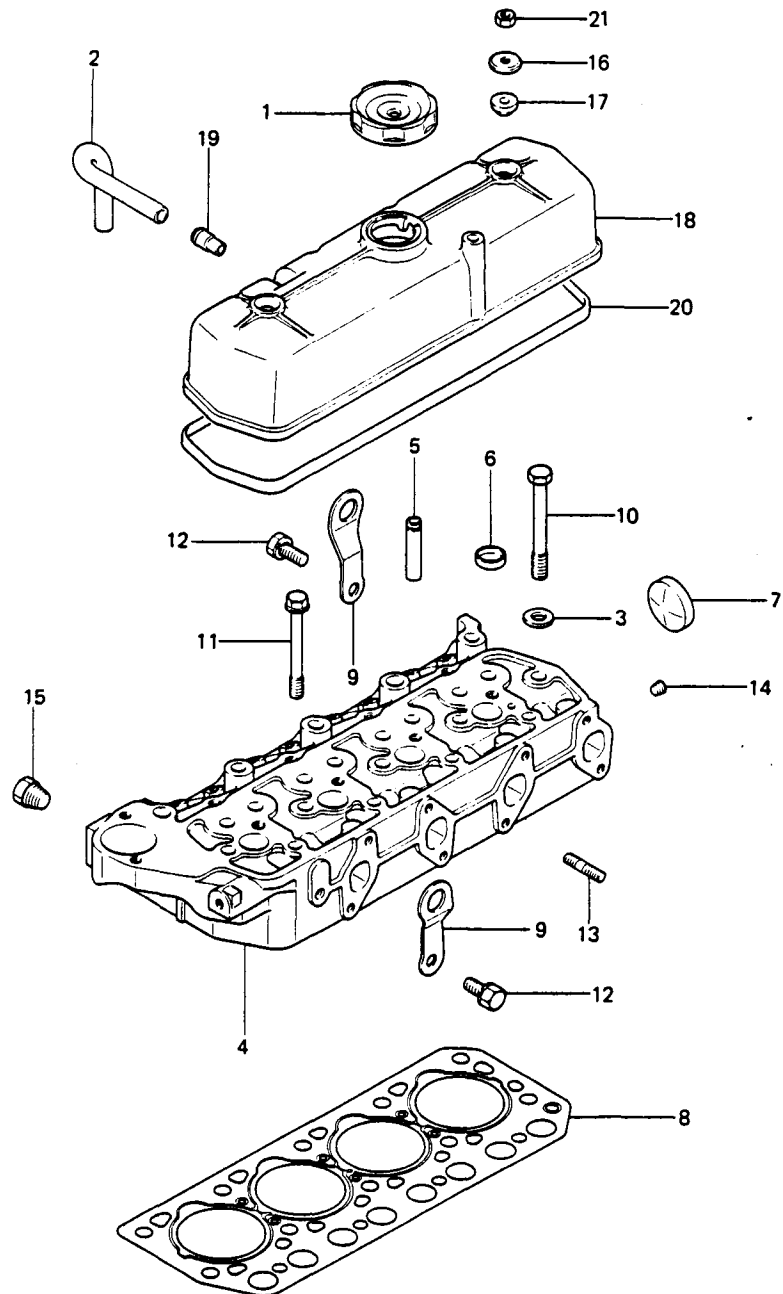
Telefax: 021-557-2991

INDEX

	<u>PAGE</u>
CYLINDER HEAD	1-4
CYLINDER BLOCK	5-8
CRANKSHAFT	9-12
CAMSHAFT, ROCKER SHAFT	13-16
FRONT COVER ASSEMBLY	18
FRESH WATER PUMP	20
ENGINE OIL PUMP	21-24
ENGINE OVERHAUL GASKET SET TYPE 60 ENGINES	25-28
ENGINE OVERHAUL GASKET SET TYPE 80 ENGINES	29-32
FUEL INJECTION PUMP, NOZZLE AND PIPES	33-36
FUEL LIFT PUMP (MANUAL PRIMING)	38
FUEL FILTER	39-42
ALTERNATOR	44
STARTER MOTOR (TYPE 60 ENGINES)	46
STARTER MOTOR (TYPE 80 ENGINES)	48
HEAT EXCHANGER (IFWC)	50
FRESH WATER PIPES	52
OIL COOLER AND PIPES DELTA AND PRM 160 GEARBOXES (IFWC)	54
WATER INJECTION BEND	56
AIR CLEANER	58
SUMP DRAIN PUMP	60
RAW WATER PUMP	62
FLYWHEEL HOUSING, FLYWHEEL AND GEARBOX ADAPTOR PARTS	64
SUPPORT BRACKETS	66
ENGINE MORSE KIT- REAR ENTRY	68
EXTERNAL COOLED MANIFOLD, ELECTRIC FUEL LIFT PUMP (SIDE AND REAR MOUNTED)	69-72
OIL COOLER AND PIPES FOR DELTA AND PRM 160 GEARBOXES (EFWC)	74
INSTRUMENT PANEL	75-78

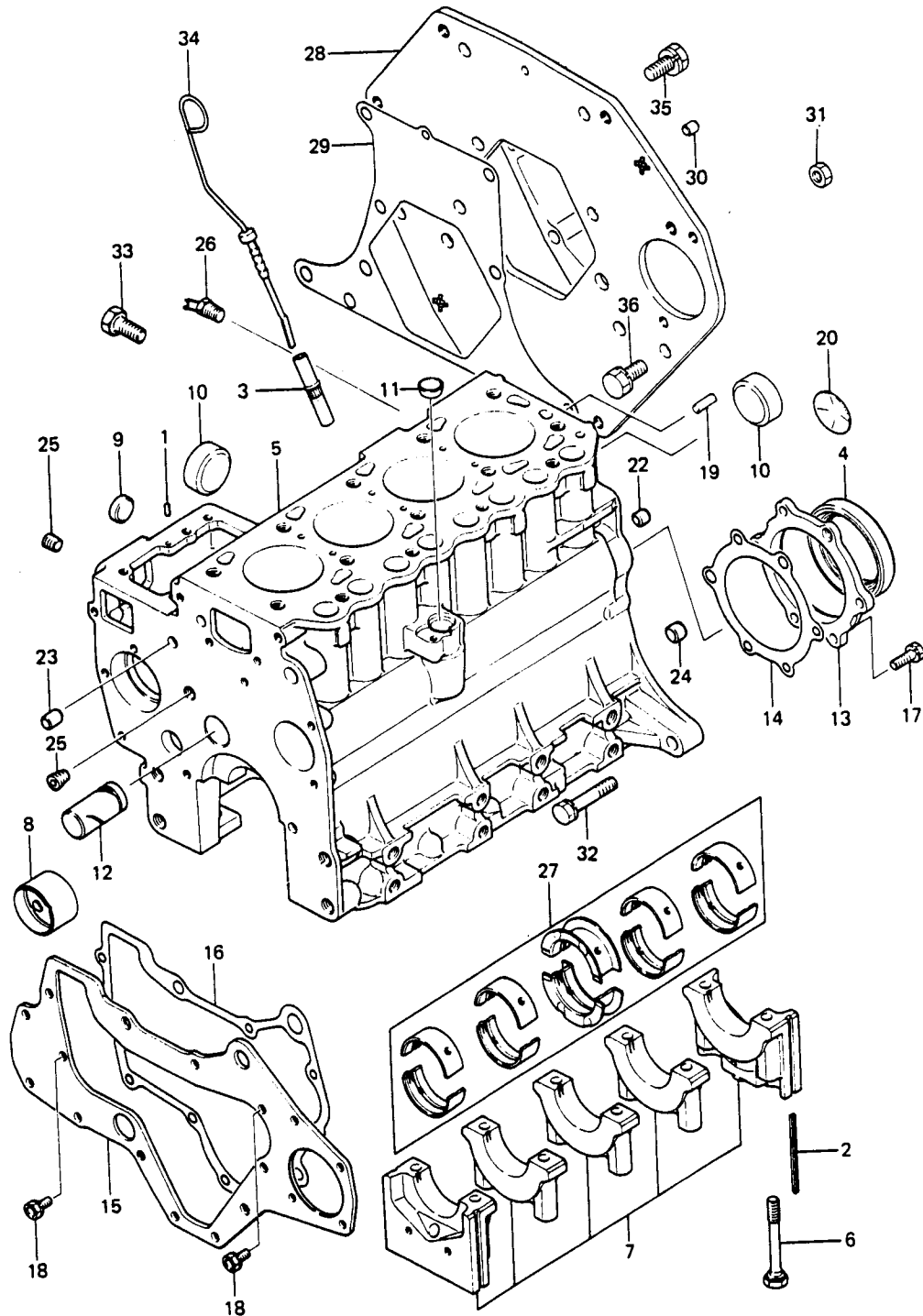



CYLINDER HEAD						
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 2	
			60D	60E	80D	80E
1	MD008784	Cap, Oil Filler	1	1	1	1
2	MM408536	Pipe, Air Breather	1	1	-	-
	MM408537	Pipe, Air Breather	-	-	1	1
3	MD020733	Washer, Cylinder Head Bolt	8	8	10	10
4-7	MM408394	Head Assy, Cylinder	1	-	-	-
	MM409814	Head Assy, Cylinder	-	1	-	-
	MM408409	Head Assy, Cylinder	-	-	1	-
	MM409758	Head Assy, Cylinder	-	-	-	1
5	MM408441	Guide, Valve	6	6	8	8
6	MF665538	Cap, Sealing (25)	3	3	4	4
7	MF665543	Cap, Sealing (45)	1	1	1	1
8	MM408453	Gasket, Cylinder Head	1	-	-	-
	MM409815	Gasket, Cylinder Head	-	1	-	-
	MM408448	Gasket, Cylinder Head	-	-	1	-
	MM408457	Gasket, Cylinder Head	-	-	-	1
9	MM408470	Lifting Eye	2	2	2	2
10	MM408481	Bolt, Cylinder Head	8	8	10	10
11	MM404316	Bolt (10 x 90)	3	3	4	4
12	MF241280	Bolt, With Washer	2	2	2	2
13	MF401936	Stud	1	1	1	1
14	MS661120	Plug, Taper	1	1	1	1
15	-	Sender (see instruments illustration)	-	-	-	-
16	MM408509	Washer	2	2	2	2
17	MD000523	Oil Seal	2	2	2	2
18-19	MM408491	Cover Assy, Rocker	1	1	-	-
18-19	MM408492	Cover Assy, Rocker	-	-	1	1
19	K9644171	Pipe	1	1	1	1

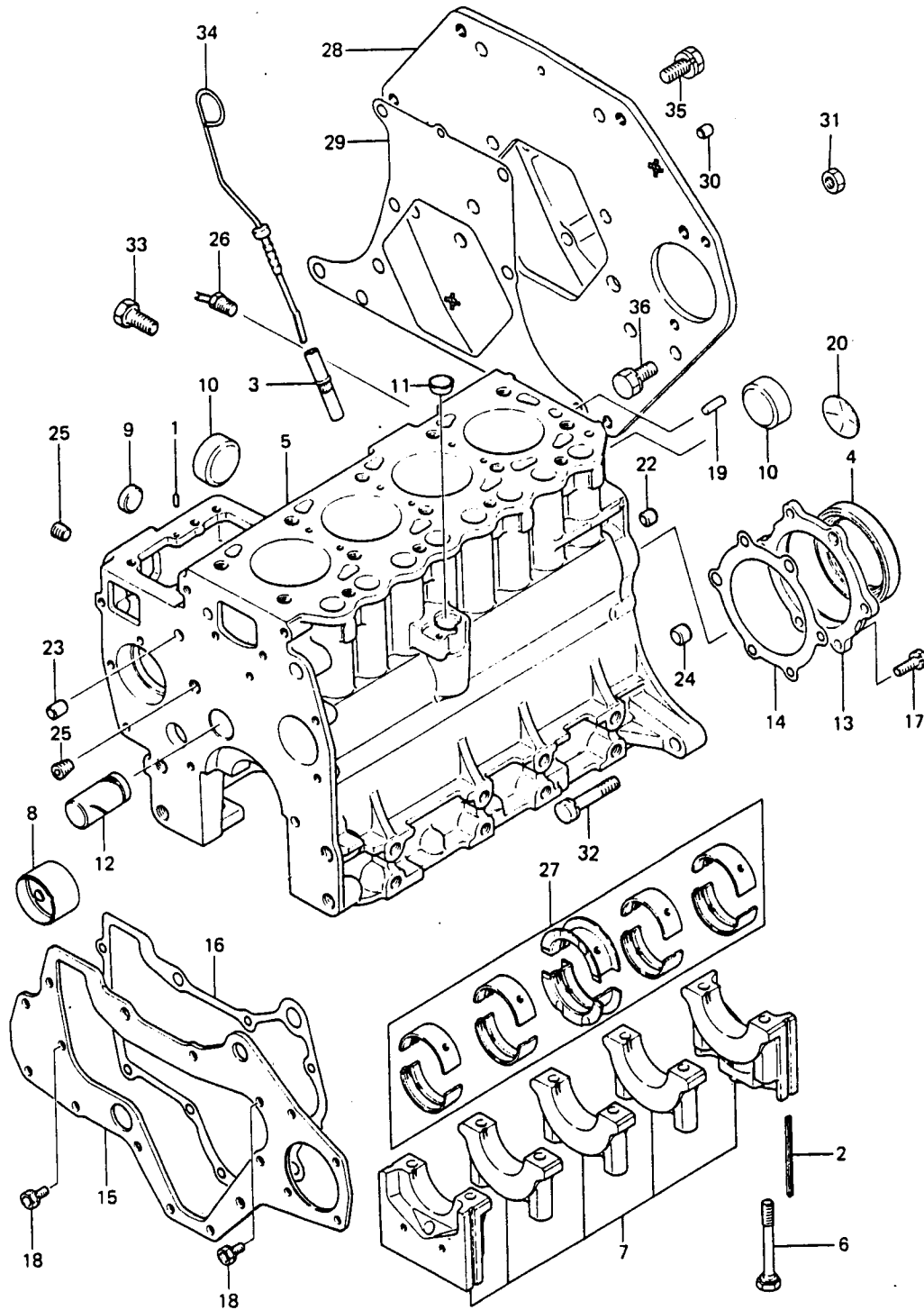



THORNYCROFT

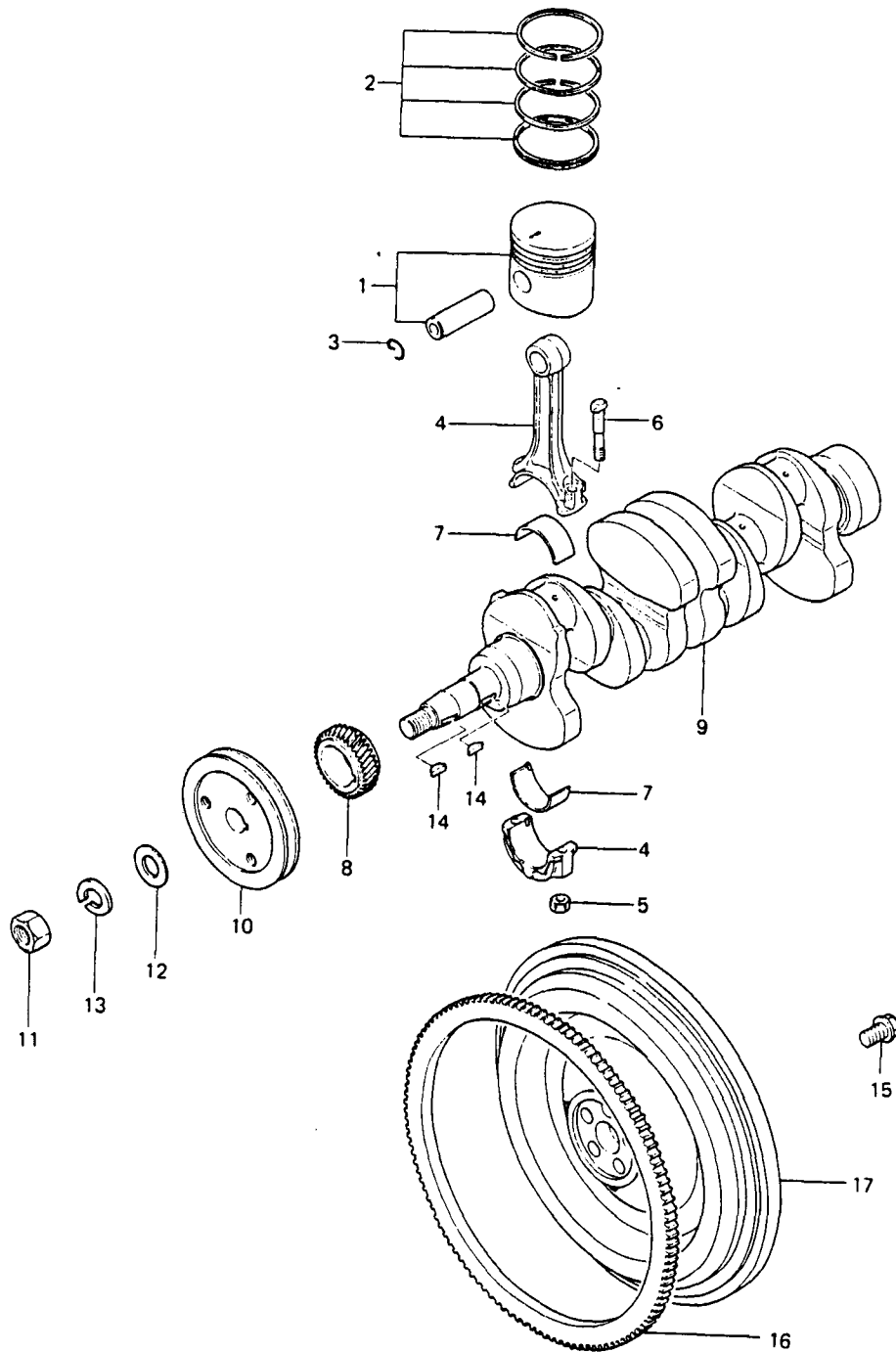
[illegible]



CYLINDER BLOCK						
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 6	
			60D	60E	80D	80E
1	MM409645	Pin, Dowel	2	2	2	2
2	MM406228	Seal, Side	4	4	4	4
3	MM430613	Guide, Dipstick	1	1	1	1
4	MM406242	Oil Seal	1	1	1	1
5-10	MM430182	Block Sub Assy, Cylinder	1	-	-	-
	MM430236	Block Sub Assy, Cylinder	-	1	-	-
	MM413866	Block Sub Assy, Cylinder	-	-	1	-
	MM430185	Block Sub Assy, Cylinder	-	-	-	1
6	MM406217	Bolt, Bearing Cap	8	8	10	10
7	*	Cap Assy, Bearing	1	1	1	1
8	MM408176	Bushing, Camshaft	1	1	1	1
9	MF665538	Cap, Sealing (25)	2	1	2	2
10	MF665543	Cap, Sealing (45)	2	2	3	3
11	MF665537	Cap, Sealing (22)	1	1	1	1
12	MM430113	Shaft, Idler	1	1	1	1
13	MM408200	Case, Oil Seal	1	1	1	1
14	MM408205	Gasket Oil Seal	1	1	1	1
15	MM408221	Plate, Front	1	1	1	1
16	MM408226	Gasket, Front Plate	1	1	1	1
17	MF240054	Bolt, With Washer	6	6	6	6
18	MF240051	Bolt, With Washer	3	3	3	3
19	MF472404	Pin, Dowel	1	1	1	1
20	MF665511	Plug, Expansion (40)	1	1	1	1
21	-	Not Illustrated	-	-	-	-
22	MS471104	Bushing, Knock (8 x 9)	2	2	2	2
23	MS471105	Bushing, Knock (8-13)	2	2	2	2
24	MS471110	Bushing, Knock (12 x 9)	1	1	1	1



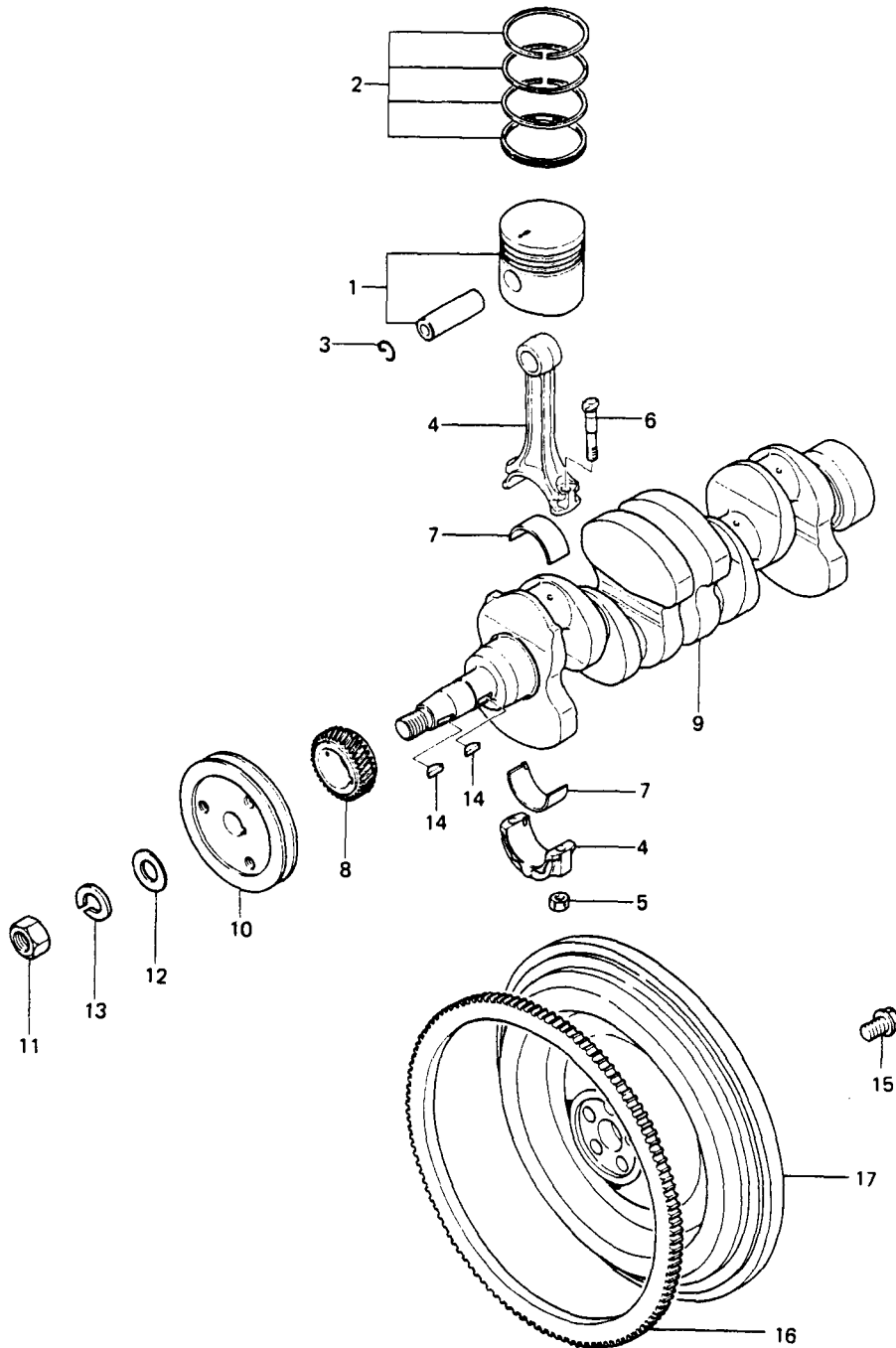
CYLINDER BLOCK						
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 8	
			60D	60E	80D	80E
25	MS661121	Plug, Taper	3	3	3	3
26	55380080	Tap, Drain Cylinder Block	1	1	1	1
27	MM408160	Bearing Set, Crankshaft STD	1	-	-	-
	MM412710	Bearing Set, Crankshaft STD	-	1	-	-
	MM408164	Bearing Set, Crankshaft STD	-	-	1	-
	MM408165	Bearing Set, Crankshaft STD	-	-	-	1
	MM408161	Bearing Set, Crankshaft 0.25 US	1	-	-	-
	MM412711	Bearing Set, Crankshaft 0.25 US	-	1	-	-
	MM408165	Bearing Set, Crankshaft 0.25 US	-	-	1	-
	MM409591	Bearing Set, Crankshaft 0.25 US	-	-	-	1
	MM408162	Bearing Set, Crankshaft 0.50 US	1	-	-	-
	MM412712	Bearing Set, Crankshaft 0.50 US	-	1	-	-
	MM408166	Bearing Set, Crankshaft 0.50 US	-	-	1	-
	MM409592	Bearing Set, Crankshaft 0.50 US	-	-	-	1
	MM408163	Bearing Set, Crankshaft 0.75 US	1	-	-	-
	MM412713	Bearing Set, Crankshaft 0.75 US	-	1	-	-
	MM408167	Bearing Set, Crankshaft 0.75 US	-	-	1	-
	MM409593	Bearing Set, Crankshaft 0.75 US	-	-	-	1
28	MM408212	Plate, Rear	1	1	1	1
29	MM408216	Gasket, Rear Plate	1	-	-	-
	MM409577	Gasket, Rear Plate	-	1	1	1
30	MM408245	Pin, Knock	2	2	2	2
31	MF430006	Nut	1	1	1	1
32	MF241315	Bolt, With Washer	2	4	4	4
33	MF100110	Bolt	4	4	4	4
34	54012970	Dipstick	1	1	1	1
35	MF241308	Bolt, With Washer	8	8	11	11



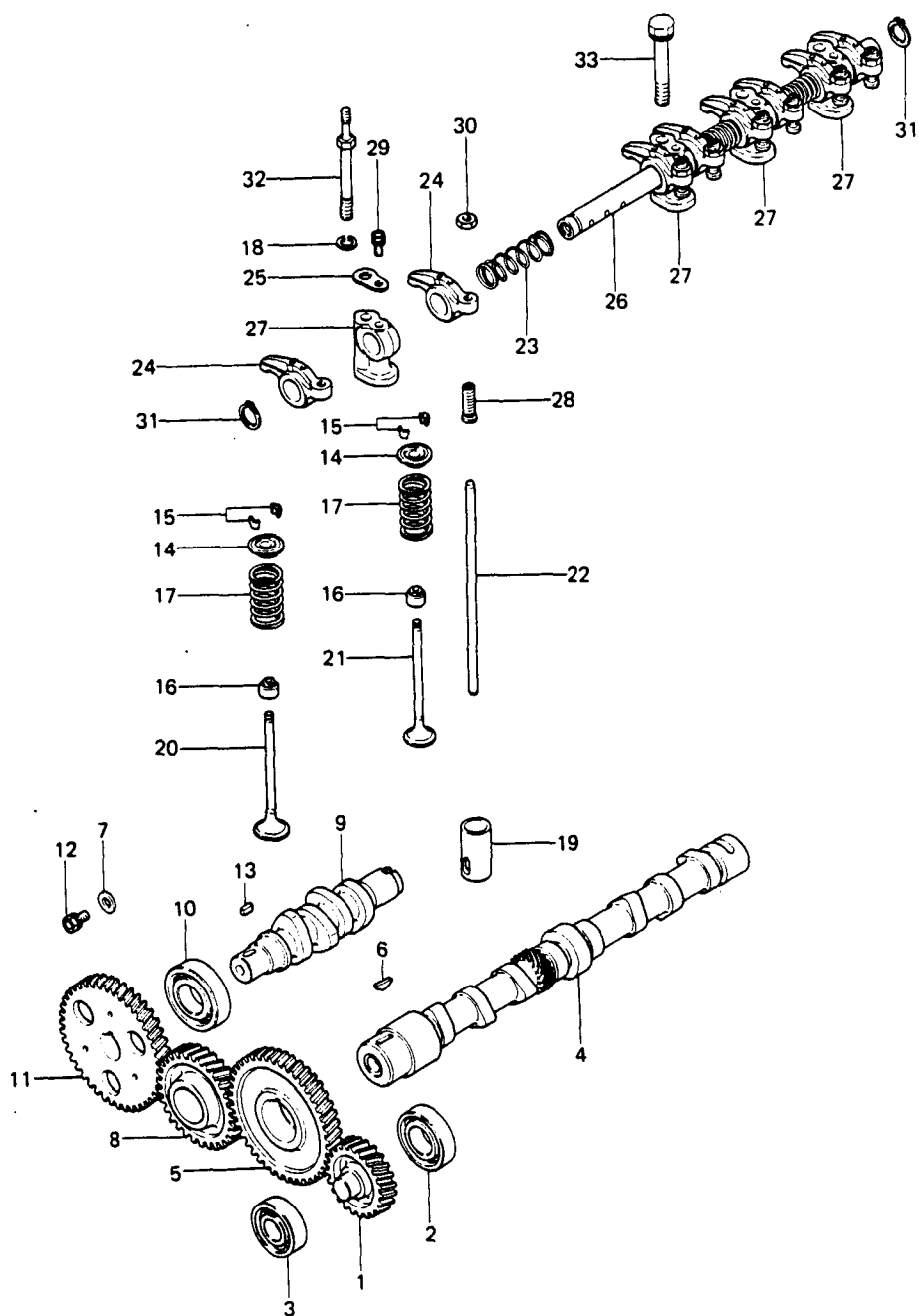
CRANKSHAFT

THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 10	
			60D	60E	80D	80E
1	MM408520	Piston & Pin Set STD	3	-	4	-
	MM409730	Piston & Pin Set STD	-	3	-	4
	MM408521	Piston & Pin Set 0.25 OS	3	-	4	-
	MM412780	Piston & Pin Set 0.25 OS	-	3	-	4
	MM408522	Piston & Pin Set 0.50 OS	3	-	4	-
	MM412781	Piston & Pin Set 0.50 OS	-	3	-	4
	MM408523	Piston & Pin Set 0.75 OS	3	-	4	-
	MM412782	Piston & Pin Set 0.75 OS	-	3	-	4
2	MM406600	Ring Set, Piston STD	3	-	4	-
	MM409753	Ring Set, Piston STD	-	3	-	4
	MM406601	Ring Set, Piston 0.25 OS	3	-	4	-
	MM409765	Ring Set, Piston 0.25 OS	-	3	-	4
	MM406602	Ring Set, Piston 0.50 OS	3	-	4	-
	MM409766	Ring Set, Piston 0.50 OS	-	3	-	4
	MM406603	Ring Set, Piston 0.75 OS	3	-	4	-
	MM409767	Ring Set, Piston 0.75 OS	-	3	-	4
3	K8221251	Clip, Piston Pin	6	6	8	8
4-6	MM408790	Rod Assy, Connecting	3	-	4	-
	MM409733	Rod Assy, Connecting	-	3	-	4
5	MD000704	Nut, Connecting Rod	6	6	8	8
6	MM402547	Bolt, Connecting Rod	6	6	8	8
7	MM408795	Bearing Set, Con Rod STD	3	-	4	-
	MM409608	Bearing Set, Con Rod STD	-	3	-	4
	MM408796	Bearing Set, Con Rod 0.25 US	3	-	4	-
	MM409605	Bearing Set, Con Rod 0.25 US	-	3	-	4
	MM408797	Bearing Set, Con Rod 0.50 US	3	-	4	-
	MM409606	Bearing Set, Con Rod 0.50 US	-	3	-	4



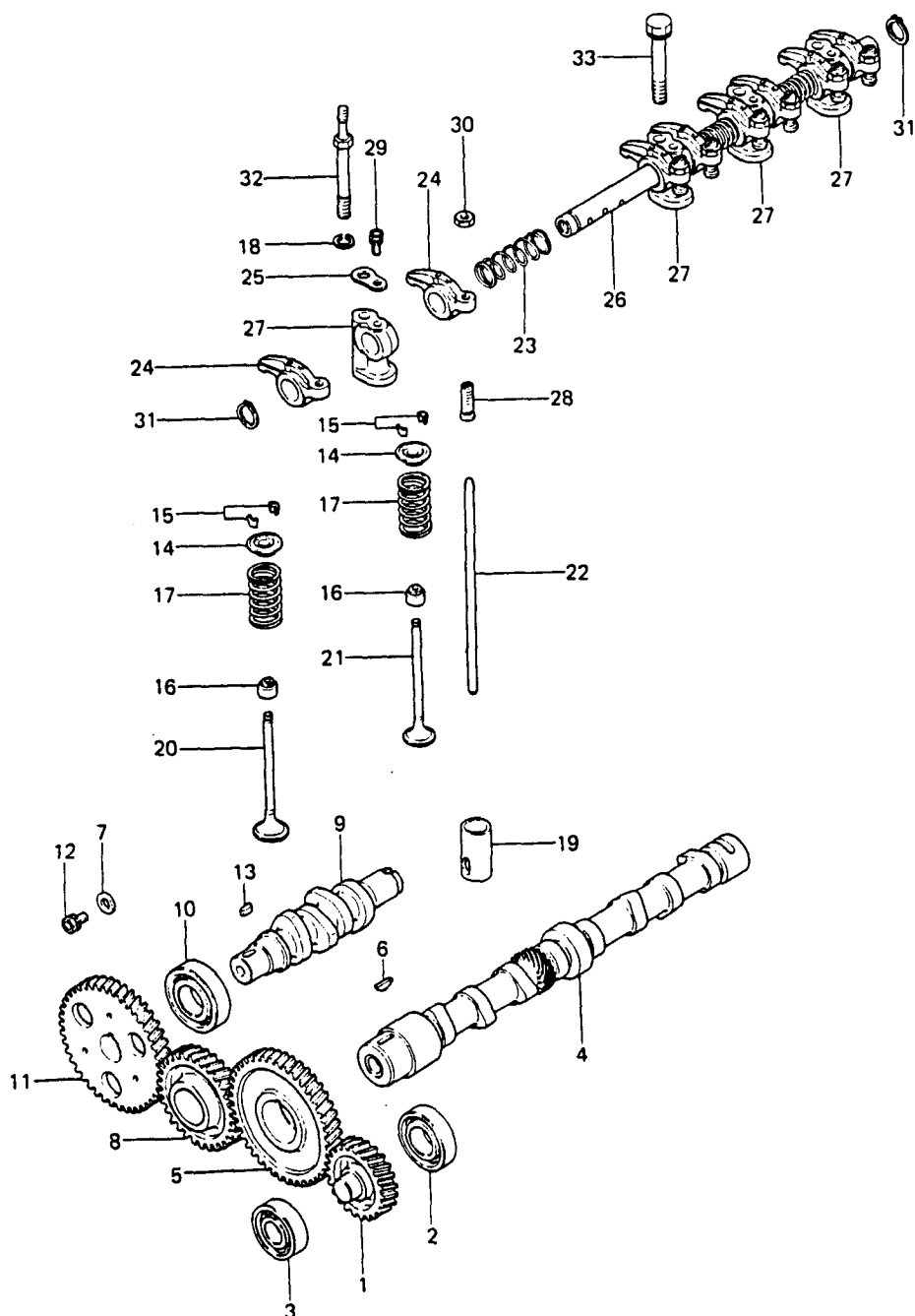
[illegible]



CAMSHAFT, ROCKER SHAFT

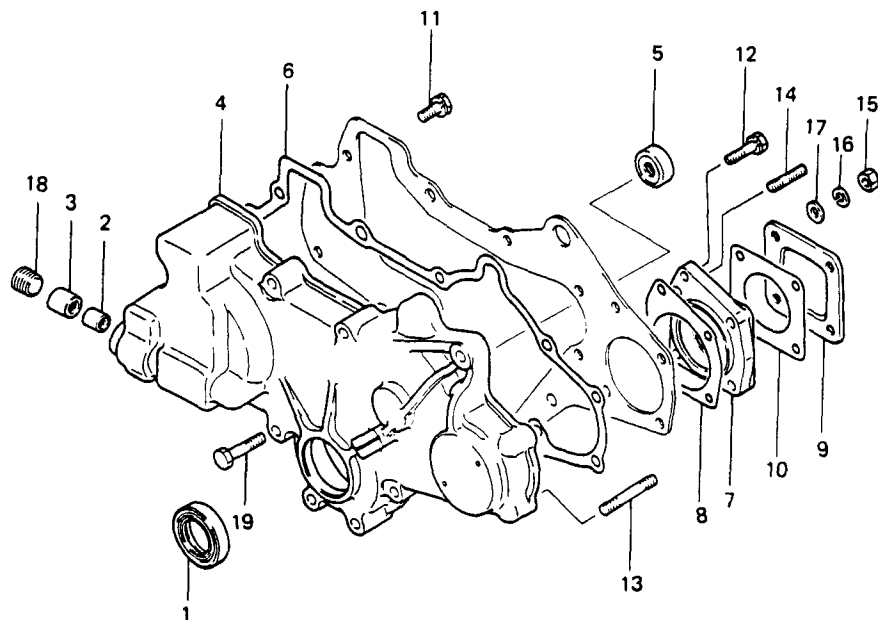
THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 14	
			60D	60E	80D	80E
1	MM407265	Gear, Pressure Oil Pump	1	1	1	1
2	K7631160	Bearing, Ball	1	1	-	-
	K7831160	Bearing, Ball	-	-	1	1
3	MD700127	Bearing, Ball	1	1	1	1
4	MM408906	Camshaft	1	1	-	-
	MM408907	Camshaft	-	-	1	1
5	MM406722	Gear, Camshaft	1	1	1	1
6	MF476215	Key, Woodruff	1	1	1	1
7	MD000425	Washer	1	1	1	1
8	MM408908	Gear Assy, Idler	1	1	1	1
9	MM408964	Camshaft, Fuel Injection Pump	1	1	-	-
	MM408965	Camshaft, Fuel Injection Pump	-	-	1	1
10	MD703856	Bearing, Ball	1	1	1	1
11	MM406685	Gear, Injection Pump Camshaft	1	1	1	1
12	MF241251	Bolt, With Washer	1	1	1	1
13	MF476018	Key	1	1	1	1
14	MD016482	Retainer, Valve Spring	6	6	8	8
15	MD016483	Collet, Valve Spring	12	12	16	16
16	MD016490	Seal, Valve Stem	6	6	8	8
17	MM402381	Spring, Valve	6	6	8	8
18	MF450406	Washer, Spring	2	2	2	2
19	MM402737	Tappet	6	6	8	8
20	MM408450	Valve, Inlet	3	3	4	4
21	MM408455	Valve, Exhaust	3	3	4	4
22	MM408920	Push Rod	6	6	8	8
23	MD000963	Spring, Rocker Shaft	2	2	3	3
24	MM406732	Rocker Arm	6	6	8	8



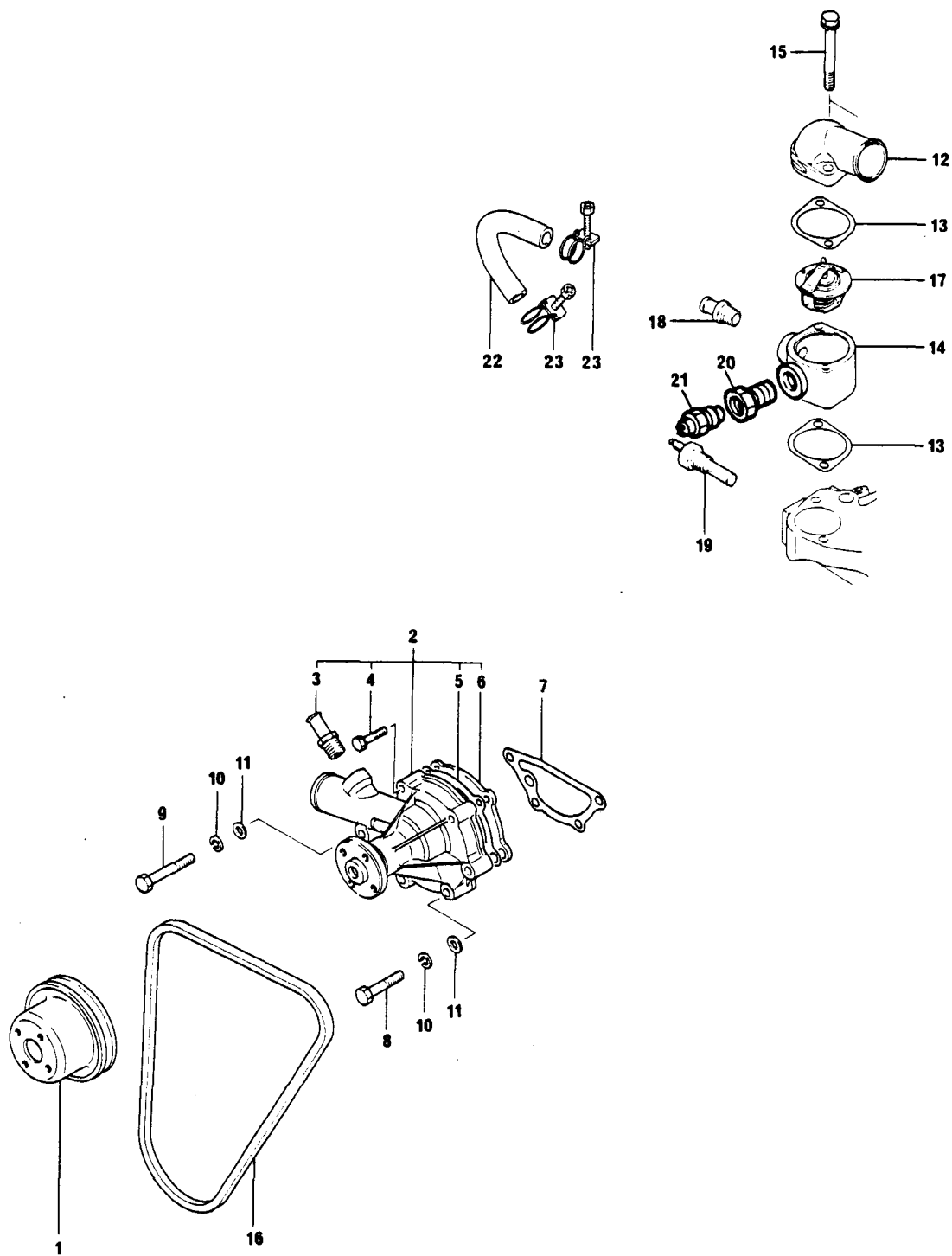
THORNYCROFT

[illegible]



THORNYCROFT

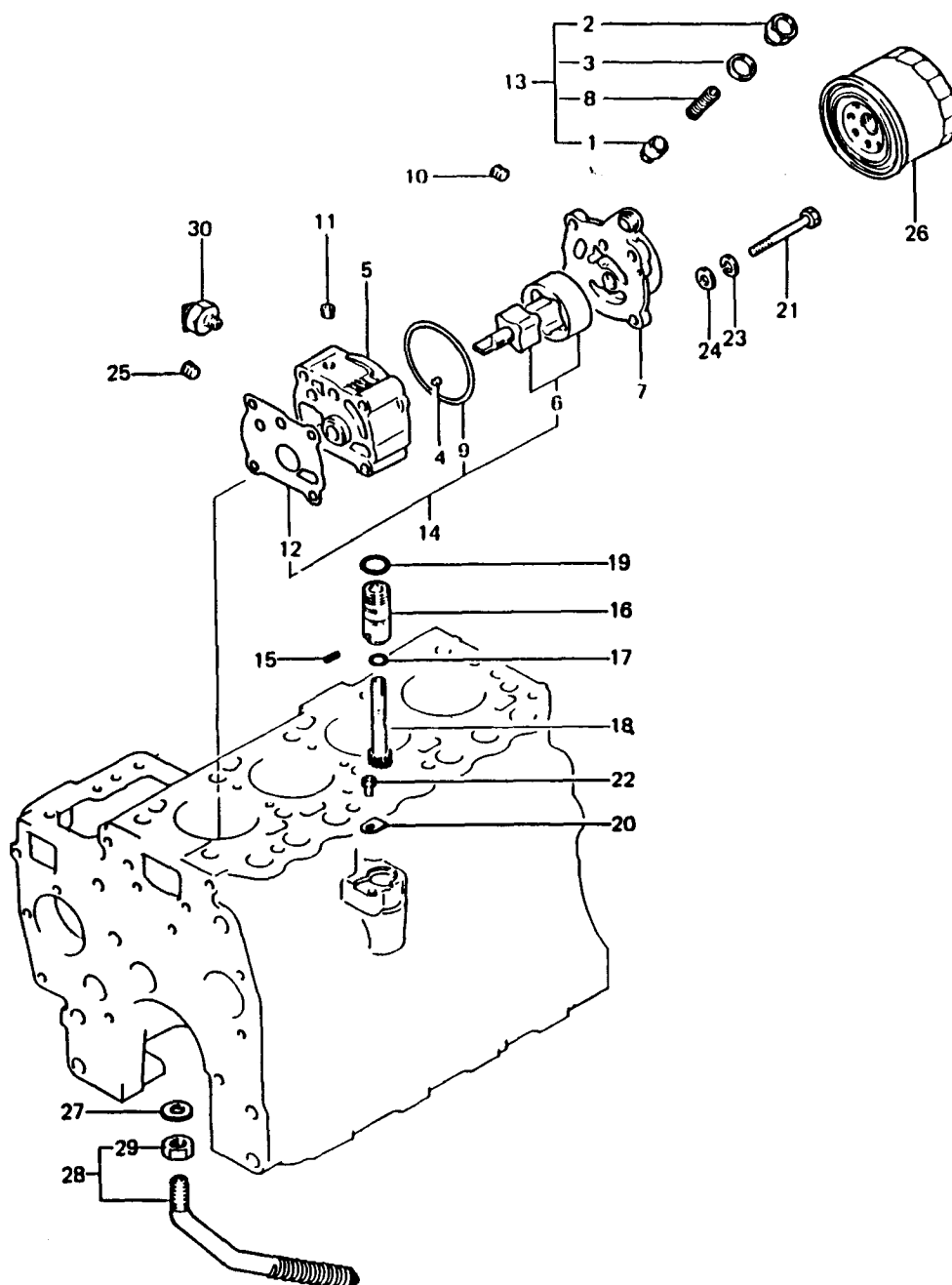
[illegible]




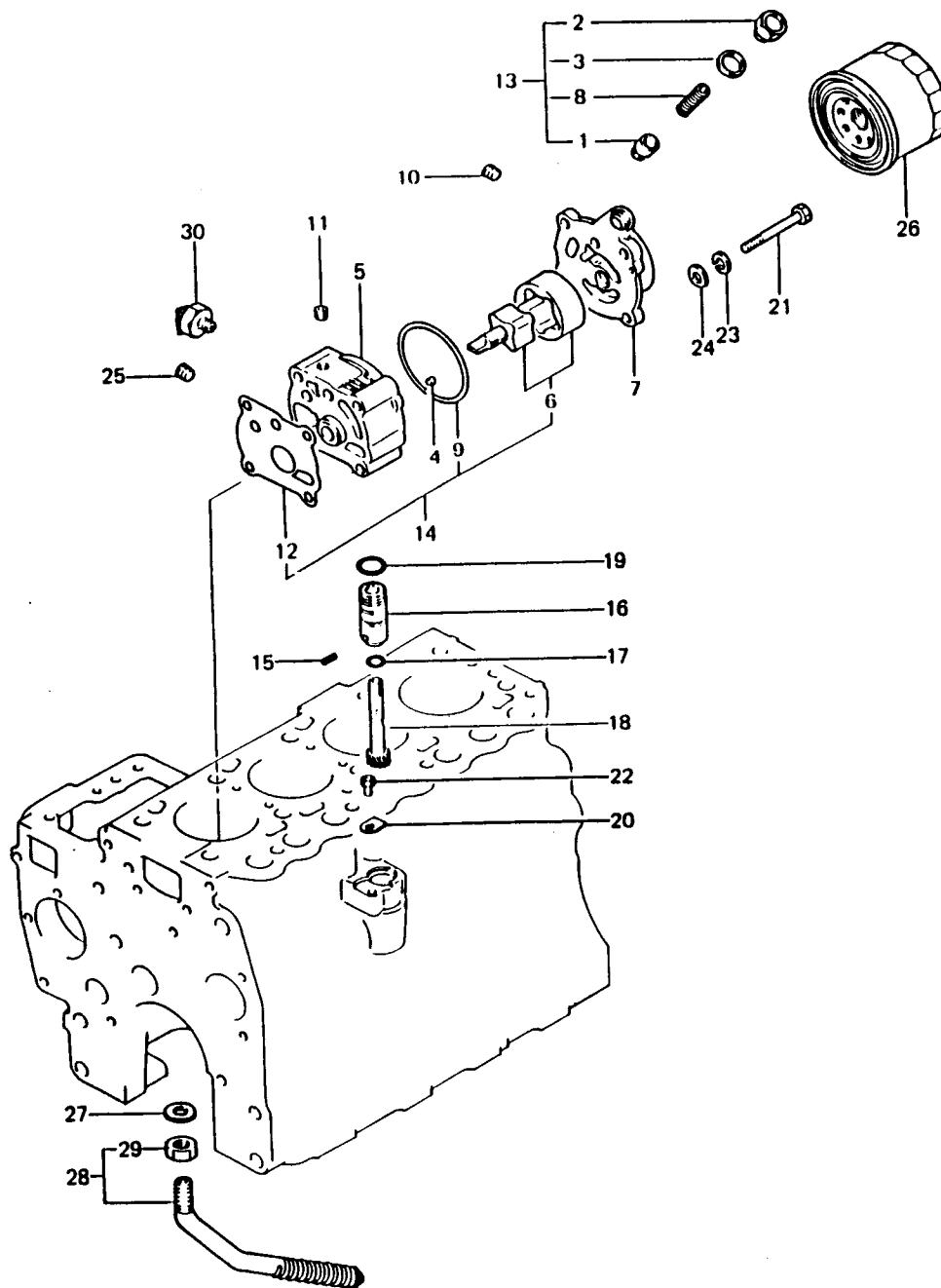
FRESH WATER PUMP

THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 20	
			60D	60E	80D	80E
1	K9674051	Pulley, Water Pump	1	1	-	-
	MM405460	Pulley, Water Pump	-	-	1	1
2	MM409303	Pump Assy, Water	1	1	1	1
3	MM409304	Connector, Hose	1	1	1	1
4	MF240031	Bolt, With Washer	2	2	2	2
5	MM409326	Gasket	1	1	1	1
6	MM409327	Plate, Water Pump	1	1	1	1
7	MM407422	Gasket	1	1	1	1
8	MF101264	Bolt	3	3	3	3
9	MF101267	Bolt	1	1	1	1
10	MF450405	Washer, spring	4	4	4	4
11	MS450035	Washer, Plain	4	4	4	4
12	54012248	Elbow, Water Outlet	1	1	1	1
13	54012282	Gasket	2	2	2	2
14	54012245	Thermostat Housing	1	1	1	1
15	MF241267	Bolt, With Washer	2	2	2	2
16	54384058	Drive Belt	1	1	1	1
17	K6516441	Thermostat	1	1	1	1
18	MM409304	Connector, Hose	1	1	1	1
19	MM409381	Sender	1	1	1	1
20	54380810	Adaptor	1	1	1	1
21	54381375	Sender	1	1	1	1
22	MM409330	Hose	1	1	1	1
23	MF661011	Clip	2	2	2	2

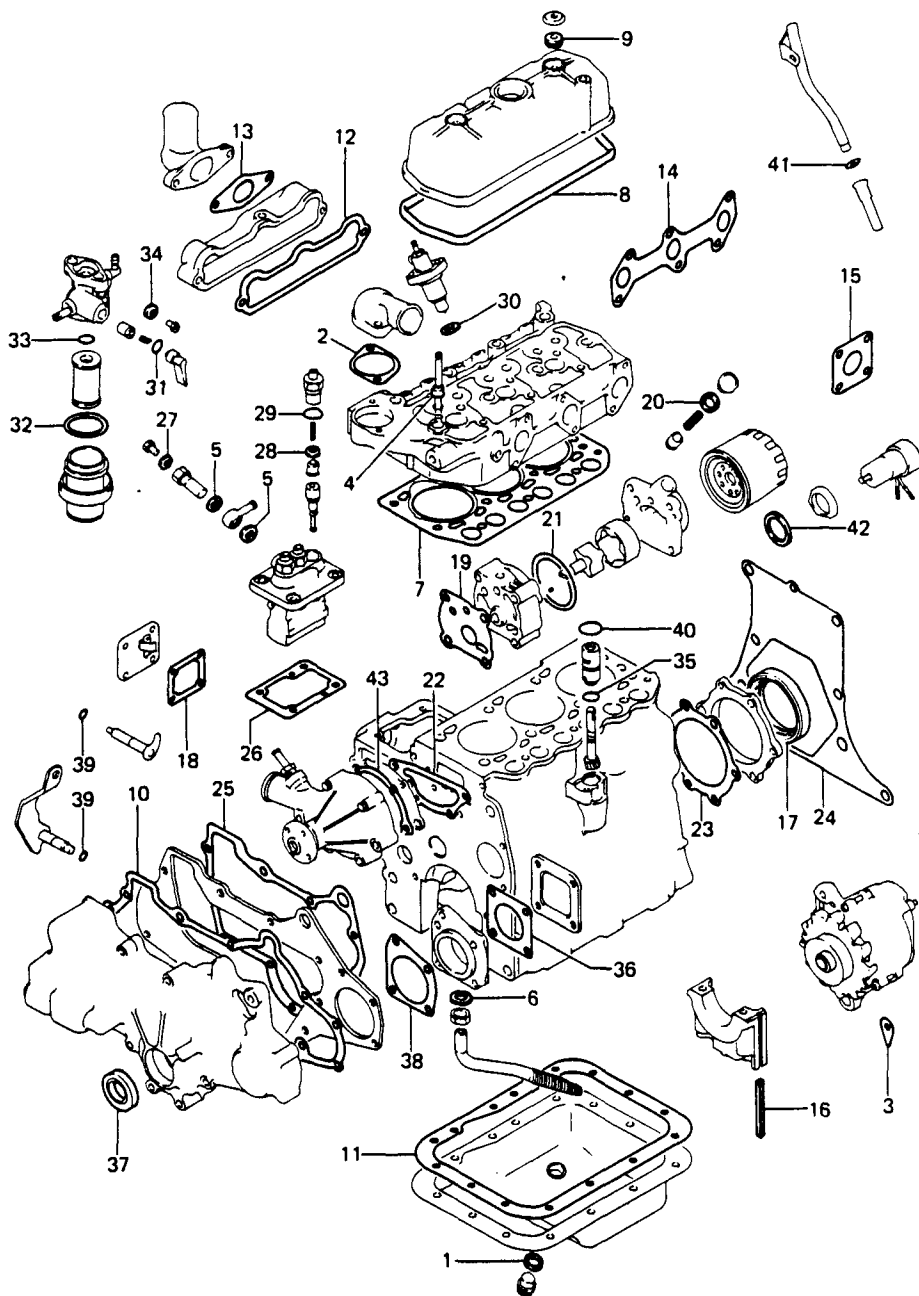


ENGINE OIL PUMP						
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 22	
			60D	60E	80D	80E
1-11	MM409371	Oil Pump Assy	1	1	-	1
	MM409370	Oil Pump Assy	-	-	1	-
1	MD001402	Plunger, Relief	1	1	1	1
2	MD001404	Plug	1	1	1	1
3	MD000312	Gasket	1	1	1	1
4	MM409373	Dowel	2	2	2	2
5	MM409244	Body, Oil Pump	1	1	1	1
6	MM407125	Rotor Assy, Oil Pump	1	1	1	1
7	MM409372	Cover, Oil Pump	1	1	1	1
8	MM409204	Spring Relief	1	1	1	1
9	MM407145	'O' Ring	1	1	1	1
10	MS661121	Plug, Taper	1	1	1	1
11	MS661120	Plug, Taper	1	1	1	1
12	MM407124	Gasket, Oil Pump Body	1	1	1	1
13	MM409893	Service Kit, Relief Valve	1	1	1	1
14	MM409894	Service Kit, Rotor	1	1	1	1
15-19	MM430598	Drive Unit (Speedo not used)				
15	MF472535	Pin (Speedo not used)				
16	MM430419	Sleeve (Speedo not used)				
17	MD701788	'O' Ring (Speedo not used)				
18	MM407171	Gear (Speedo not used)				
19	MF5020012	'O' Ring (Speedo not used)				
20	MD701789	Plate (Speedo not used)				
21	MF101268	Bolt	4	4	4	4
22	MF241224	Bolt With Washer	1	1	1	1
23	MF450405	Washer, Spring	4	4	4	4
24	MS450035	Washer, Plain	4	4	4	4



THORNYCROFT

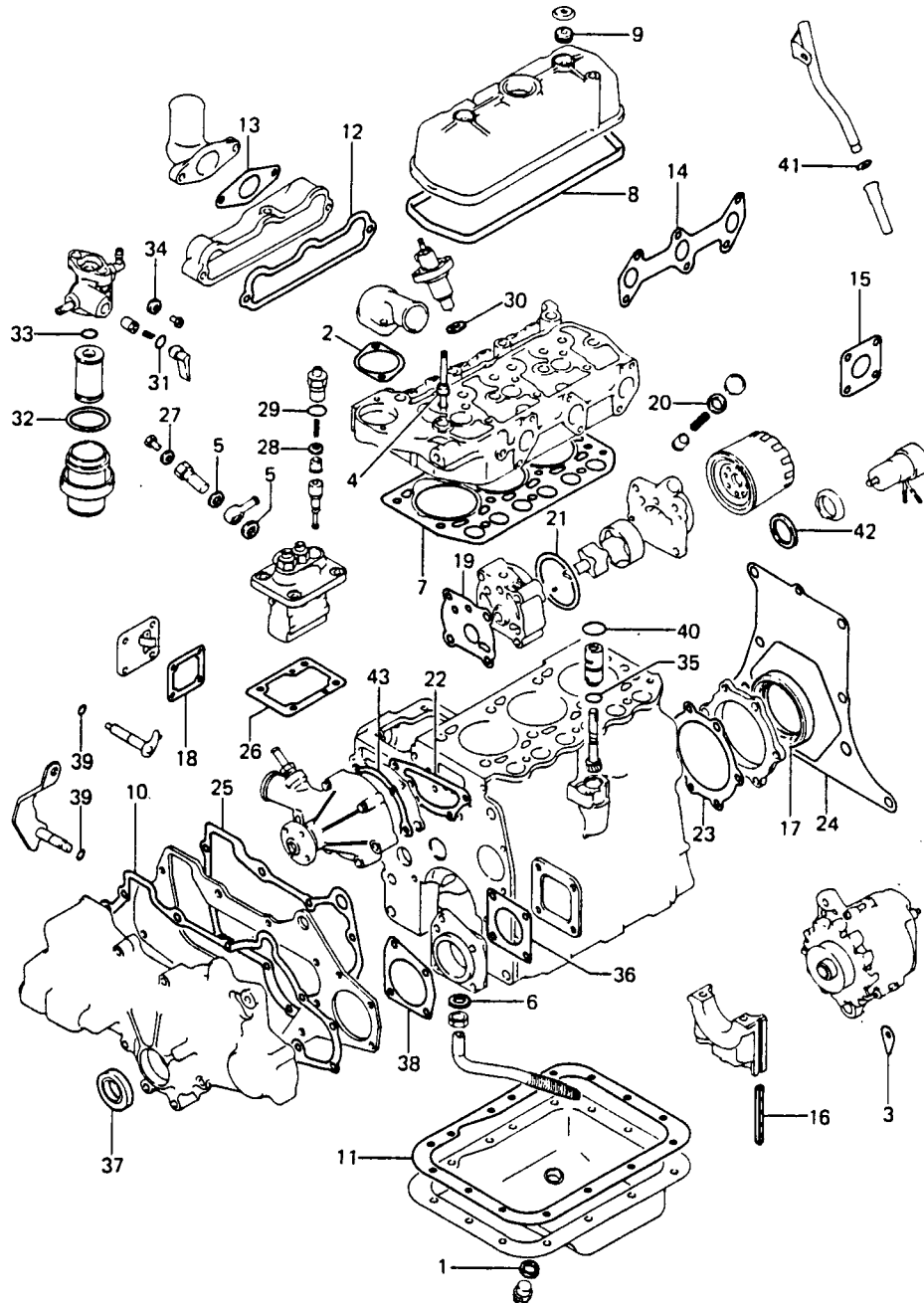
[illegible]



ENGINE OVERHAUL GASKET SET TYPE 60 ENGINES

THORNYCROFT

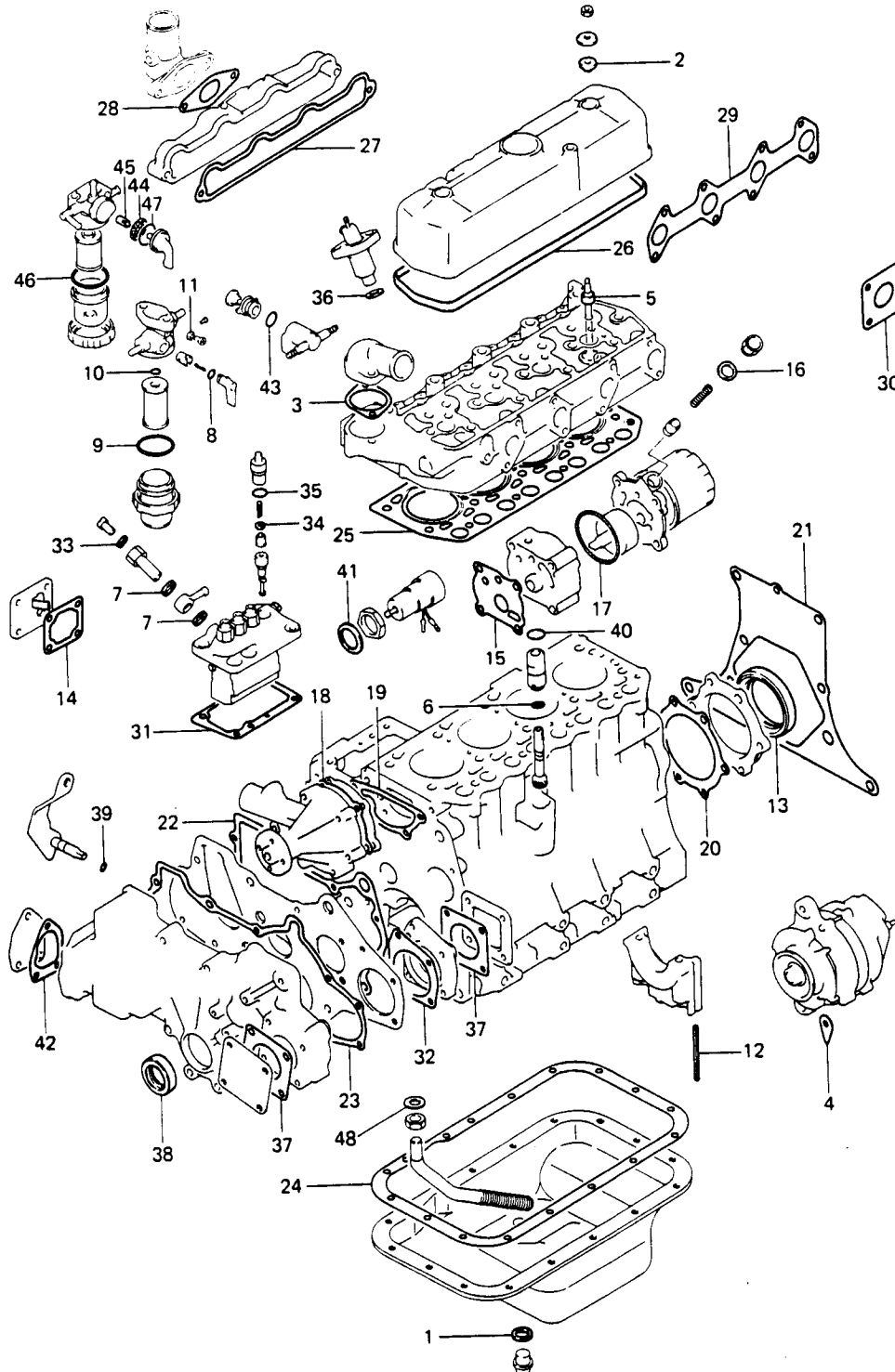
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 26	
			60D	60E	80D	80E
1-43	MM408383	Gasket Kit	1	-	-	-
	MM409768	Gasket Kit	-	1	-	-
1	MD000312	Gasket, Oil Drain Plug (18)	1	1	-	-
2	MD000551	Gasket	2	2	-	-
3	MD001517	Shim	3	3	-	-
4	MD016490	Seal, Valve Stem	6	6	-	-
5	MK66112000	Washer, Seal	2	2	-	-
6	MF660036	Gasket (16)	1	1	-	-
7	MM408453	Gasket, Cylinder Head	1	-	-	-
	MM409815	Gasket, Cylinder Head	-	1	-	-
8	MM408501	Gasket, Rocker Cover	1	1	-	-
9	MD000523	Oil Seal	2	2	-	-
10	MM408235	Gasket, Gear Case	1	1	-	-
11	MM408321	Gasket, Sump	1	1	-	-
12	MM408551	Gasket, Intake Manifold	1	1	-	-
13	MM408566	Gasket, Inlet Pipe	1	1	-	-
14	MM408576	Gasket, Exhaust Manifold	1	1	-	-
15	MM408580	Gasket	1	1	-	-
16	MM406228	Seal, Side	4	4	-	-
17	MM406242	Oil Seal	1	1	-	-
18	MM409151	Gasket, Cover	1	1	-	-
19	MM407124	Gasket, Oil Pump Body	1	1	-	-
20	MM407137	Gasket	1	1	-	-
21	MM407145	'O' Ring	1	1	-	-
22	MM407422	Gasket, Water Pump	1	1	-	-
23	MM408205	Gasket, Oil Seal	1	1	-	-
24	MM409577	Gasket, Rear Plate	1	1	-	-



ENGINE OVERHAUL GASKET SET TYPE 60 ENGINES

THORNYCROFT

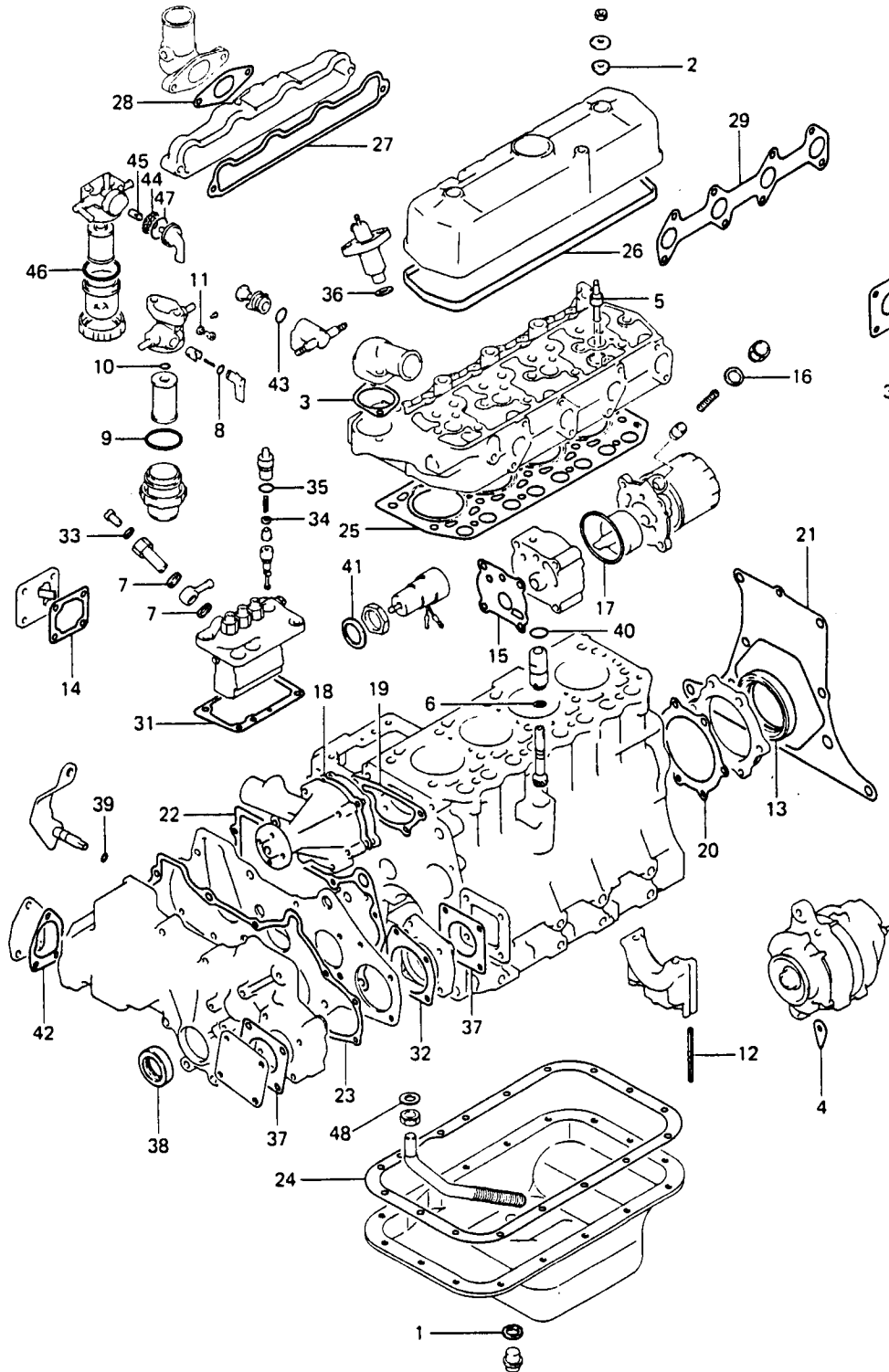
[illegible]



ENGINE OVERHAUL GASKET SET TYPE 80 ENGINES

THORNYCROFT

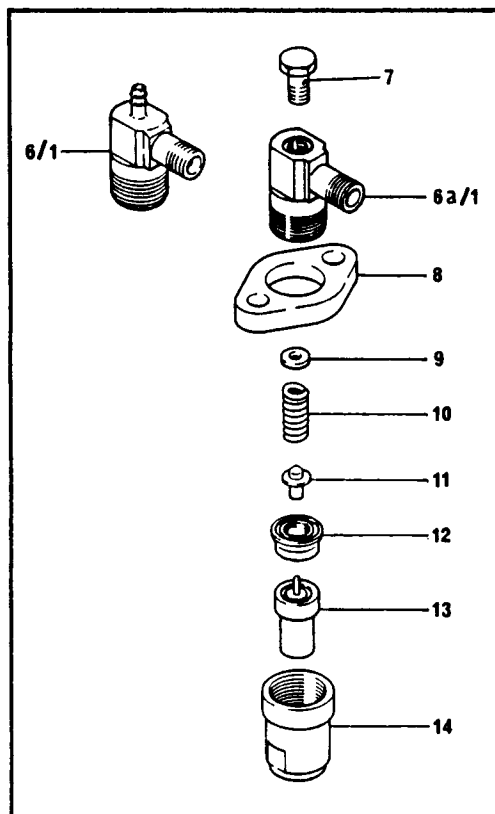
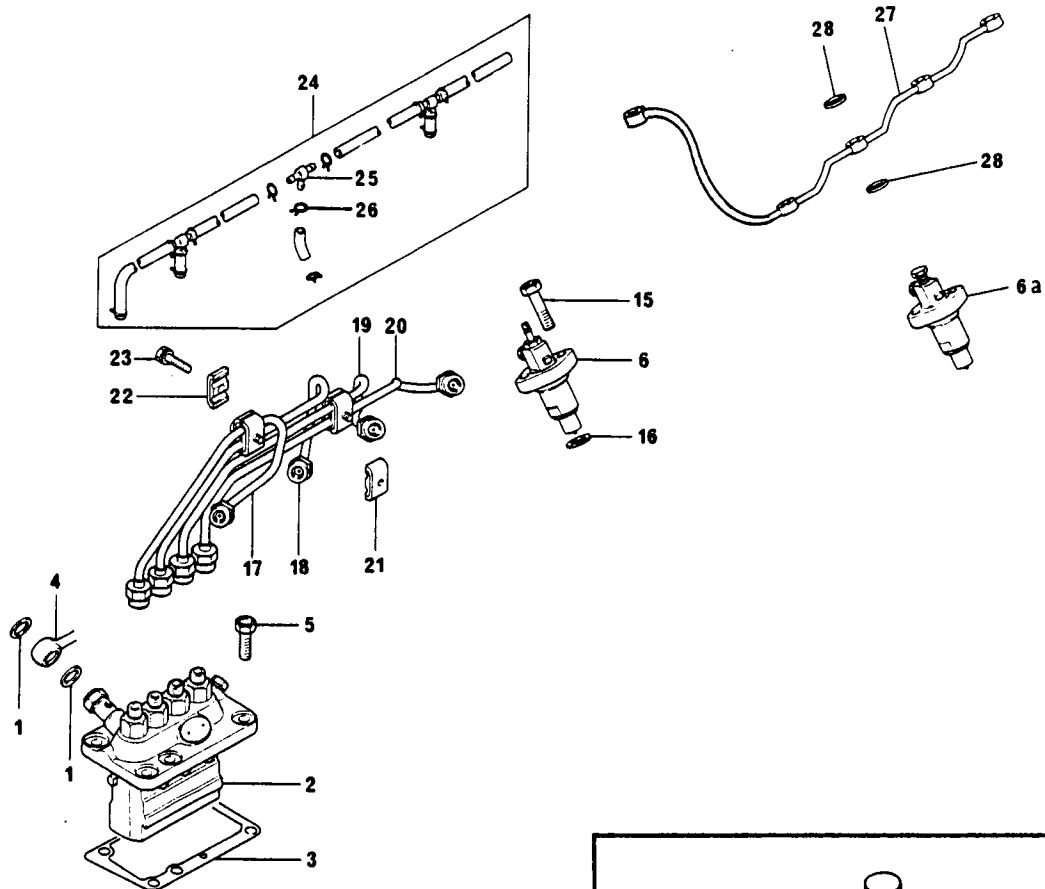
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 30	
			60D	60E	80D	80E
1-48	MM408127	Gasket Kit	-	-	1	-
	MM409764	Gasket Kit	-	-	-	1
1	MD000312	Gasket, Oil Drain Plug	-	-	1	1
2	MD000523	Oil Seal	-	-	2	2
3	MD000551	Gasket	-	-	2	2
4	MD001517	Shim	-	-	3	3
5	MD016490	Seal, Valve Stem	-	-	8	8
6	MD701788	'O' Ring, B	-	-	1	1
7	MK66114000	Washer, Seal	-	-	2	2
8	MM404874	'O' Ring, Valve	-	-	1	1
9	MM404878	'O' Ring, Filter Cup	-	-	1	1
10	MM404881	'O' Ring, Element	-	-	1	1
11	MM404884	Packing	-	-	2	2
12	MM406228	Seal, Side	-	-	4	4
13	MM406242	Oil Seal	-	-	1	1
14	MM409151	Gasket, Cover	-	-	1	1
15	MM407124	Gasket, Oil Pump Body	-	-	1	1
16	MD000312	Gasket, Oil Drain Plug	-	-	1	1
17	MM407145	'O' Ring	-	-	1	1
18	MM409326	Gasket, Water Pump	-	-	1	1
19	MM407422	Gasket, Water Pump	-	-	2	2
20	MM408205	Gasket, Oil Seal	-	-	1	1
21	MM409577	Gasket, Rear Plate	-	-	1	1
22	MM408226	Gasket, Front Plate	-	-	1	1
23	MM408235	Gasket, Gear Case	-	-	1	1
24	MM408291	Gasket, Sump	-	-	1	1



ENGINE OVERHAUL GASKET SET TYPE 80 ENGINES

THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 32	
			60D	60E	80D	80E
25	MM408448	Gasket, Cylinder Head	-	-	1	-
	MM408457	Gasket, Cylinder Head	-	-	-	1
26	MM408502	Gasket, Rocker Cover	-	-	1	1
27	MM408552	Gasket, Intake Manifold	-	-	1	1
28	MM408566	Gasket, Inlet Pipe	-	-	1	1
29	MM408577	Gasket, Exhaust Manifold	-	-	1	1
30	MM408581	Gasket	-	-	1	1
31	MM409898	Shim Set, Adjusting	-	-	1	1
32	MM409235	Gasket, Housing	-	-	1	1
33	MM500114	Washer, Fuel Pipe Union	-	-	2	2
34	MM500336	Gasket, Delivery Valve	-	-	4	4
35	MM500438	'O' Ring	-	-	4	4
36	K6515430	Gasket, Nozzle Holder	-	-	4	4
37	MM401206	Gasket, Oil Pump Cover	-	-	2	2
38	K9413390	Oil Seal	-	-	1	1
39	MF520002	'O' Ring (7)	-	-	2	2
40	MF520012	'O' Ring (18)	-	-	1	1
41	MF660042	Gasket (30)	-	-	1	1
42	MM408234	Gasket, Governor Cover	-	-	1	1
43	MM409632	'O' Ring	-	-	1	1
44	MM409863	Packing, Valve	-	-	1	1
45	MM409871	Seat, Valve	-	-	1	1
46	MM409869	'O' Ring, Filter Cup	-	-	1	1
47	MM409866	'O' Ring Valve	-	-	1	1
48	MF660036	Gasket (16)	-	-	1	1

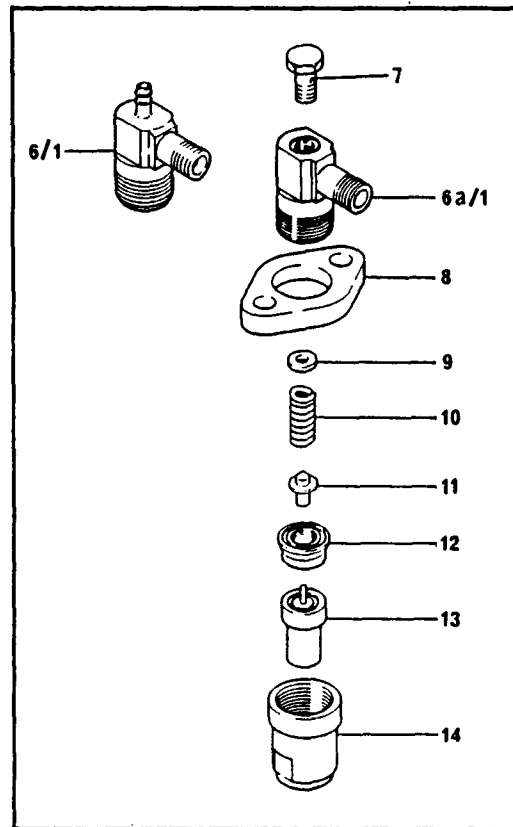
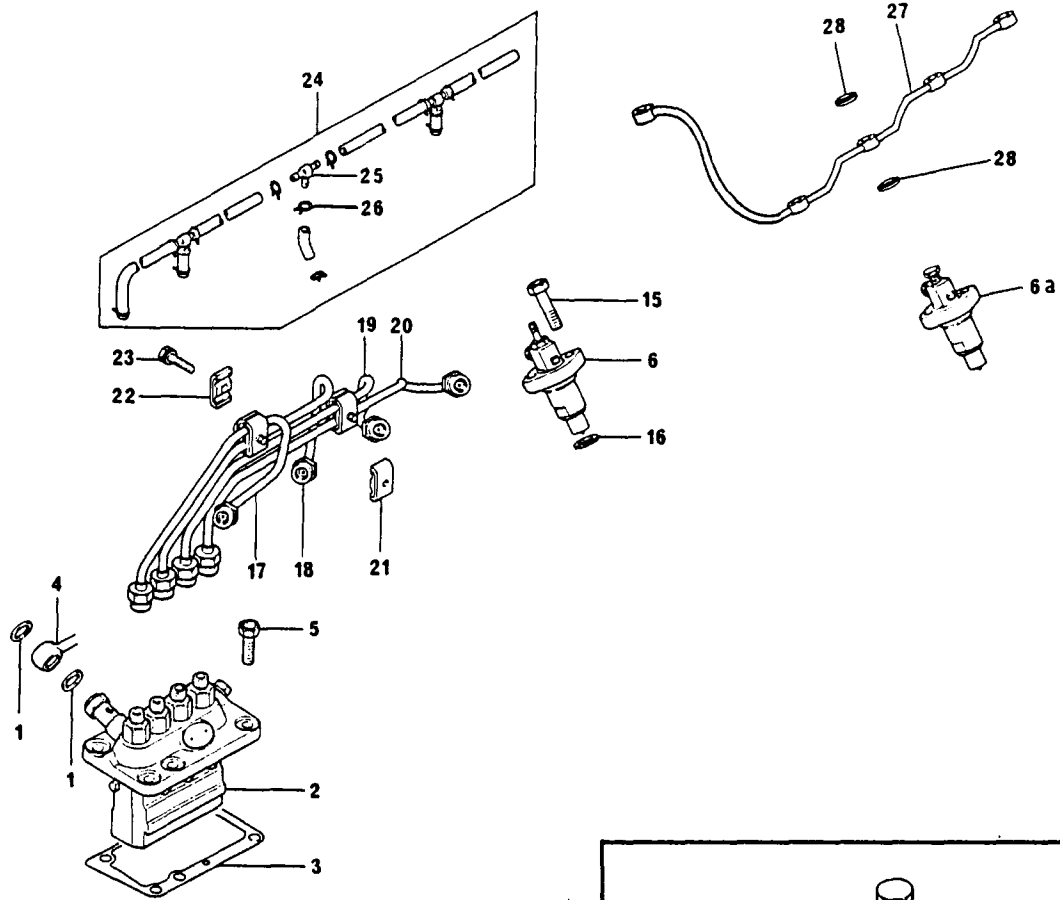


FUEL INJECTION PUMP, NOZZLE AND PIPES

THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 34	
			60D	60E	80D	80E
1	MK66112000	Washer, Seal	2	2	-	-
	MK66114000	Washer, Seal	-	-	2	2
2	MM409013	Pump Assy, Fuel Injection	1	-	-	-
	MM409842	Pump Assy, Fuel Injection	-	1	-	-
	MM409027	Pump Assy, Fuel Injection	-	-	1	-
	MM413239	Pump Assy, Fuel Injection	-	-	-	1
3	MM409891	Shim Set, Adjusting	1	1	-	-
	MM409898	Shim Set, Adjusting	-	-	1	1
4	-	Pipe (See Fuel Filter Page 40)	-	-	-	-
5	MF100055	Bolt	4	4	6	6
6	MM401110	Nozzle & Holder Assy (Flex L.O. Pipe)*	3	3	4	4
6A	MM408880	Nozzle & Holder Assy (Solid L.O.Pipe)*	3	3	4	4
6/1	MM501276	Body	3	3	4	4
6A/1	MM501245	Body	3	3	4	4
7	MM501100	Bolt, Banjo	3	3	4	4
8	MM501240	Flange	3	3	4	4
9	MM500785	Washer 1.3	A/R	A/R	A/R	A/R
	MM500786	Washer 1.35	A/R	A/R	A/R	A/R
	MM500787	Washer 1.4	A/R	A/R	A/R	A/R
	MM500795	Washer 0.9	A/R	A/R	A/R	A/R
	MM500796	Washer 1.0	A/R	A/R	A/R	A/R
	MM500797	Washer 1.1	A/R	A/R	A/R	A/R
	MM500798	Washer 1.2	A/R	A/R	A/R	A/R
	MM500799	Washer 0.1	A/R	A/R	A/R	A/R
10	MM500136	Spring, Pressure	3	3	4	4
11	MM500135	Pin, Pressure	3	3	4	4
12	MM500137	Distance Piece	3	3	4	4

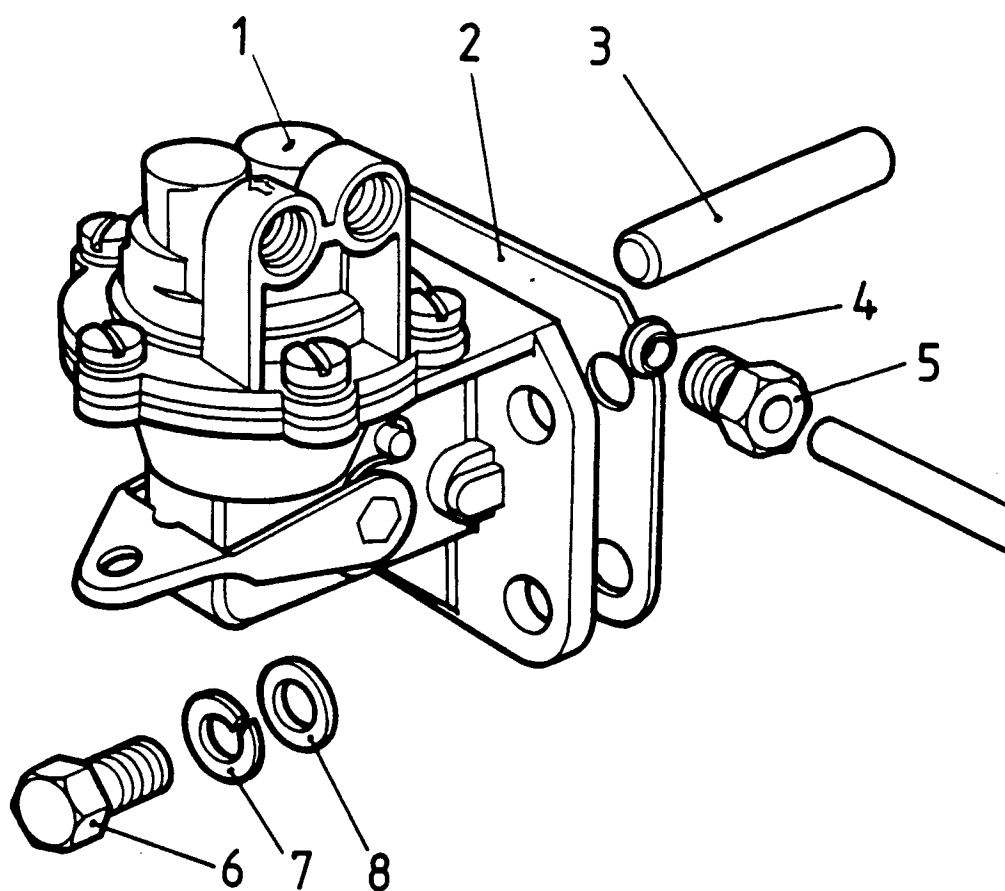
* L.O.: - Leak Off



FUEL INJECTION PUMP, NOZZLE AND PIPES

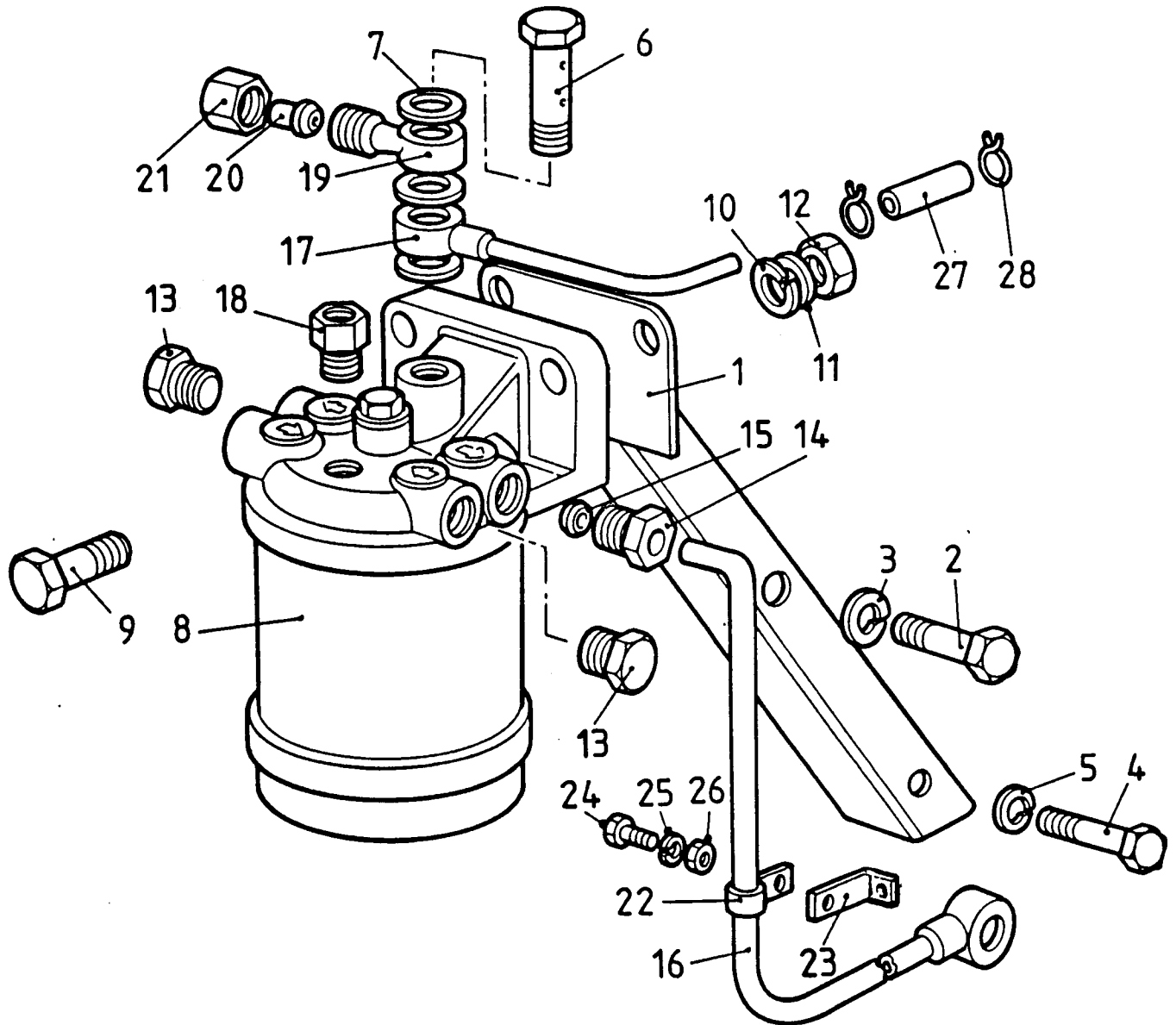
THORNYCROFT

[illegible]



THORNYCROFT

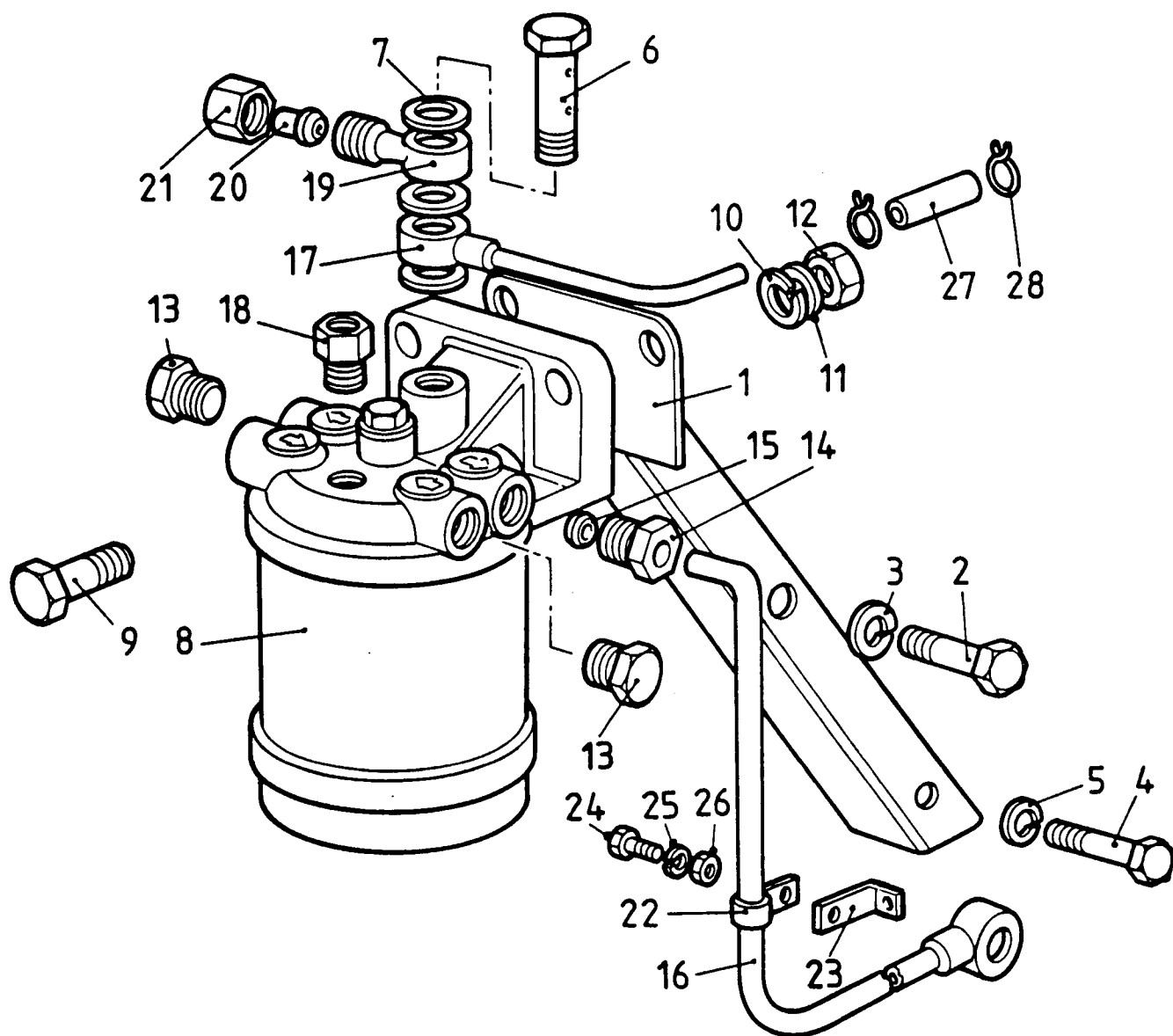
[illegible]



FUEL FILTER

THORNYCROFT

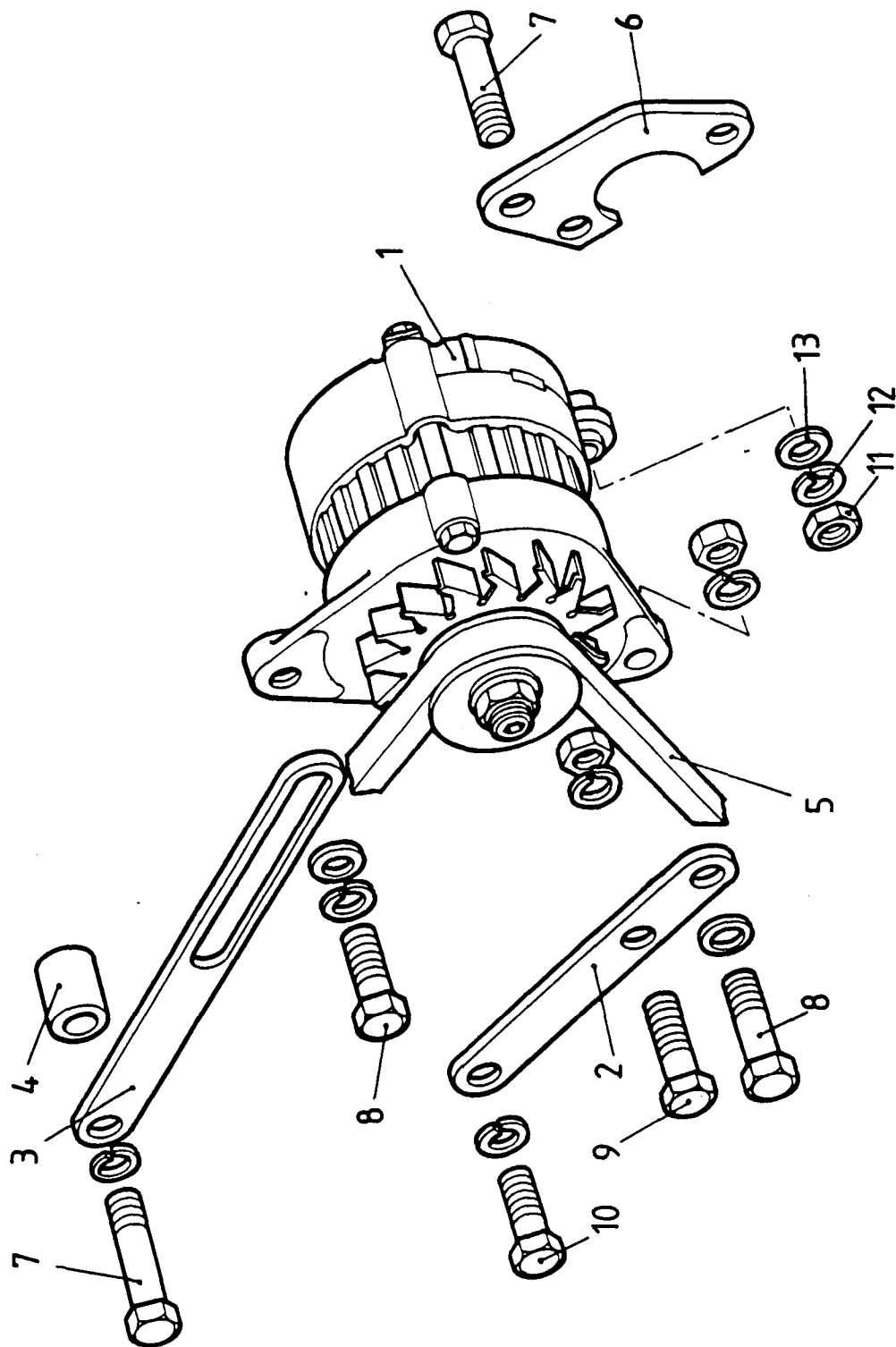
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 40	
			60D	60E	80D	80E
1	54012277	Bracket, Fuel Filter	1	1	1	1
2	M10x125x45	Bolt	1	1	1	1
3	WSM 10	Washer, Spring	1	1	1	1
4	M8B x 40	Bolt	1	1	1	1
5	WSM 8	Washer, Spring	1	1	1	1
6	54381315	Banjo Bolt	1	1	1	1
7	54383351	Washer, Sealing	3	3	3	3
8	54383336	Fuel Filter, Assy	1	1	1	1
	GFE 5296	Fuel Filter, Element	1	1	1	1
9	M10S x 25	Screw	2	2	2	2
10	WSM 10	Washer, Spring	2	2	2	2
11	WPM 10	Washer, Plain	2	2	2	2
12	M10 N	Nut	2	2	2	2
13	54383364	Plug, Filter	2	2	2	2
14	54381461	Nut	3	3	3	3
15	54381531	Olive	3	3	3	3
16	54012276	Fuel Pipe, Filter to Inj Pump	1	1	-	-
	54012280	Fuel Pipe, Filter to Inj Pump	-	-	1	1
17	54381627	Banjo Body	1	1	1	1
18	54383550	Adaptor	1	1	1	1
19	54381316	Banjo	1	1	1	1
20	55300666	Nipple	1	1	1	1
21	55300667	Nut, Union	1	1	1	1
22	54384066	Clip, 'P'	1	1	1	1
23	54384065	Support Strap	1	1	1	1
24	M6S x 16	Bolt	1	1	1	1
25	WSM 6	Washer, Spring	1	1	1	1



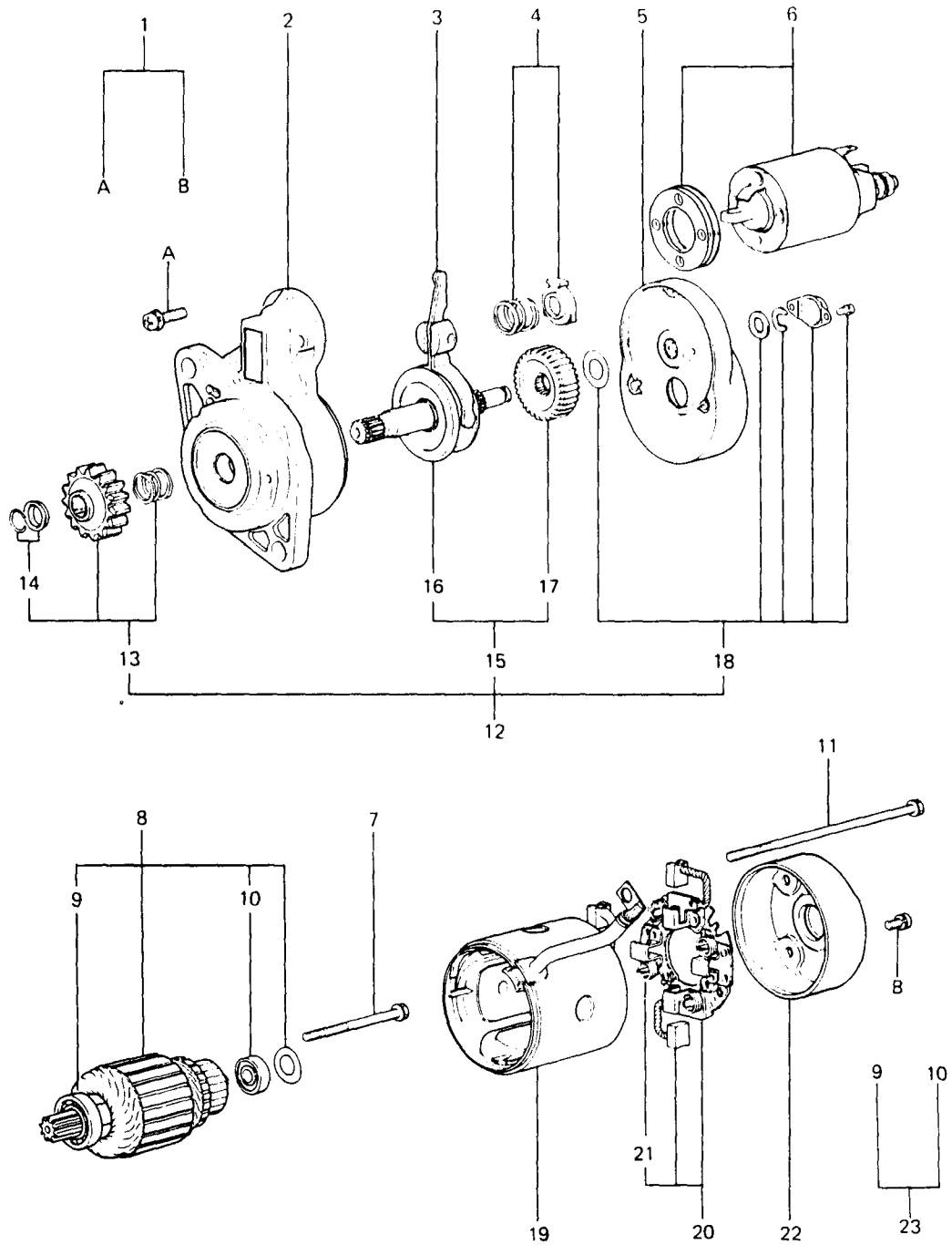
FUEL FILTER

THORNYCROFT

[illegible]



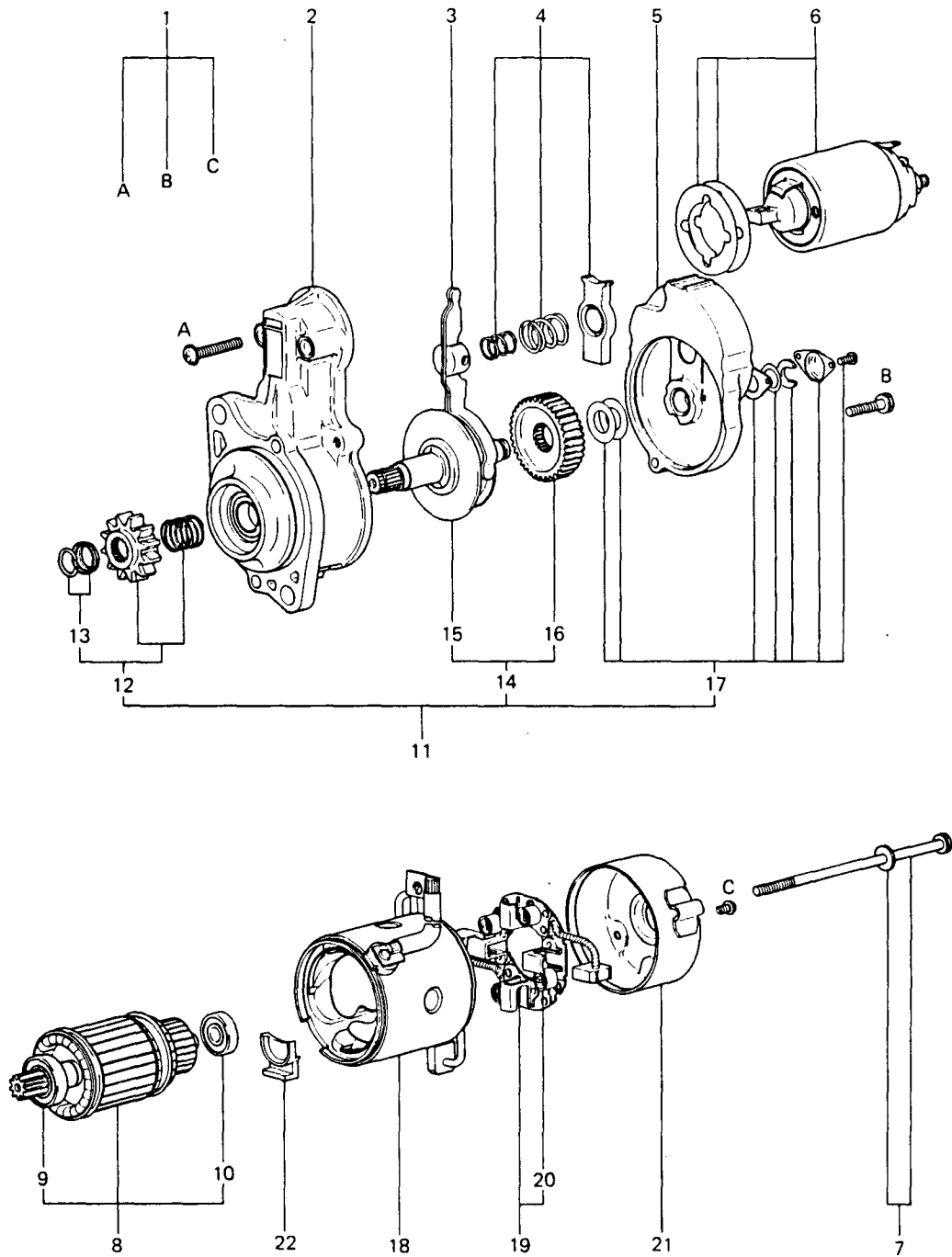
[illegible]



STARTER MOTOR (TYPE 60 ENGINES)

THORNYCROFT

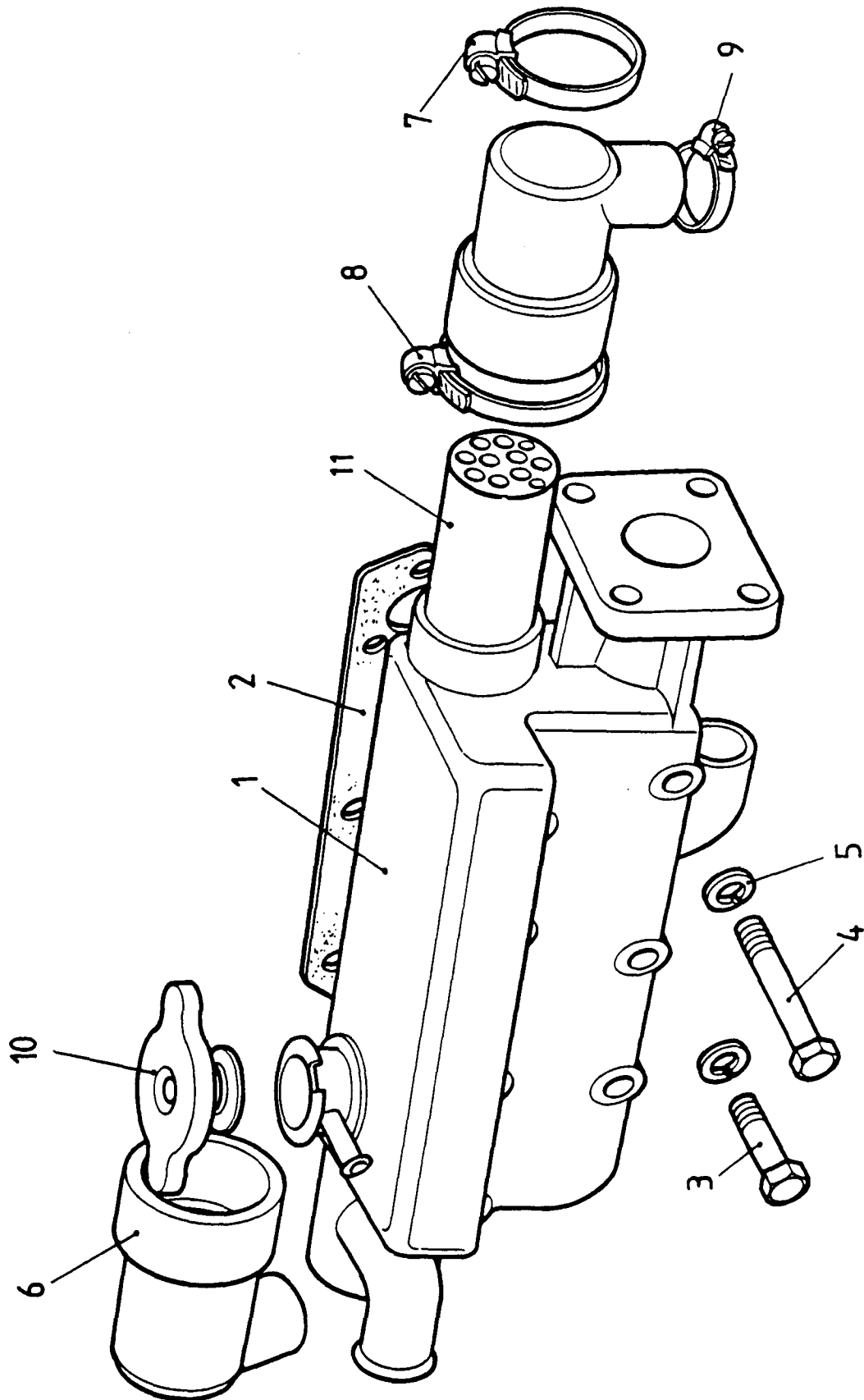
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 46	
			60D	60E	80D	80E
1-23	MM409410	Starter Assy (12V-1.6kW):M	1	1	-	-
1	MD607432	Screw Set	1	1	-	-
2	MM502398	Bracket Assy, Front	1	1	-	-
3	MM502329	Lever Assy	1	1	-	-
4	MD602963	Spring Set	1	1	-	-
5	MM502331	Bracket Assy, Centre	1	1	-	-
6	MM502461	Switch Assy	1	1	-	-
7	MM502332	Bolt, Through	1	1	-	-
8	MM502333	Armature Set	1	1	-	-
9	MM502334	Bearing, Front	1	1	-	-
10	MM502335	Bearing, Rear	1	1	-	-
11	MM502347	Bolt, Through	2	2	-	-
12	MM502395	Shaft Assy, Clutch Set	1	1	-	-
13	MM502396	Pinion Set	1	1	-	-
14	MD607416	Stopper Set	1	1	-	-
15	MD607539	Gear Set	1	1	-	-
16	MD607540	Shaft Assy, Pinion	1	1	-	-
17	MM502341	Gear	1	1	-	-
18	MM502342	Cover Set	1	1	-	-
19	MM502397	Yoke Assy	1	1	-	-
20	MD607420	Holder Assy, Brush	1	1	-	-
21	MD602210	Spring, Brush	4	4	-	-
22	MM502346	Bracket, Rear	1	1	-	-
23	MM409895	Service Kit, Starter Bearing	1	1	-	-



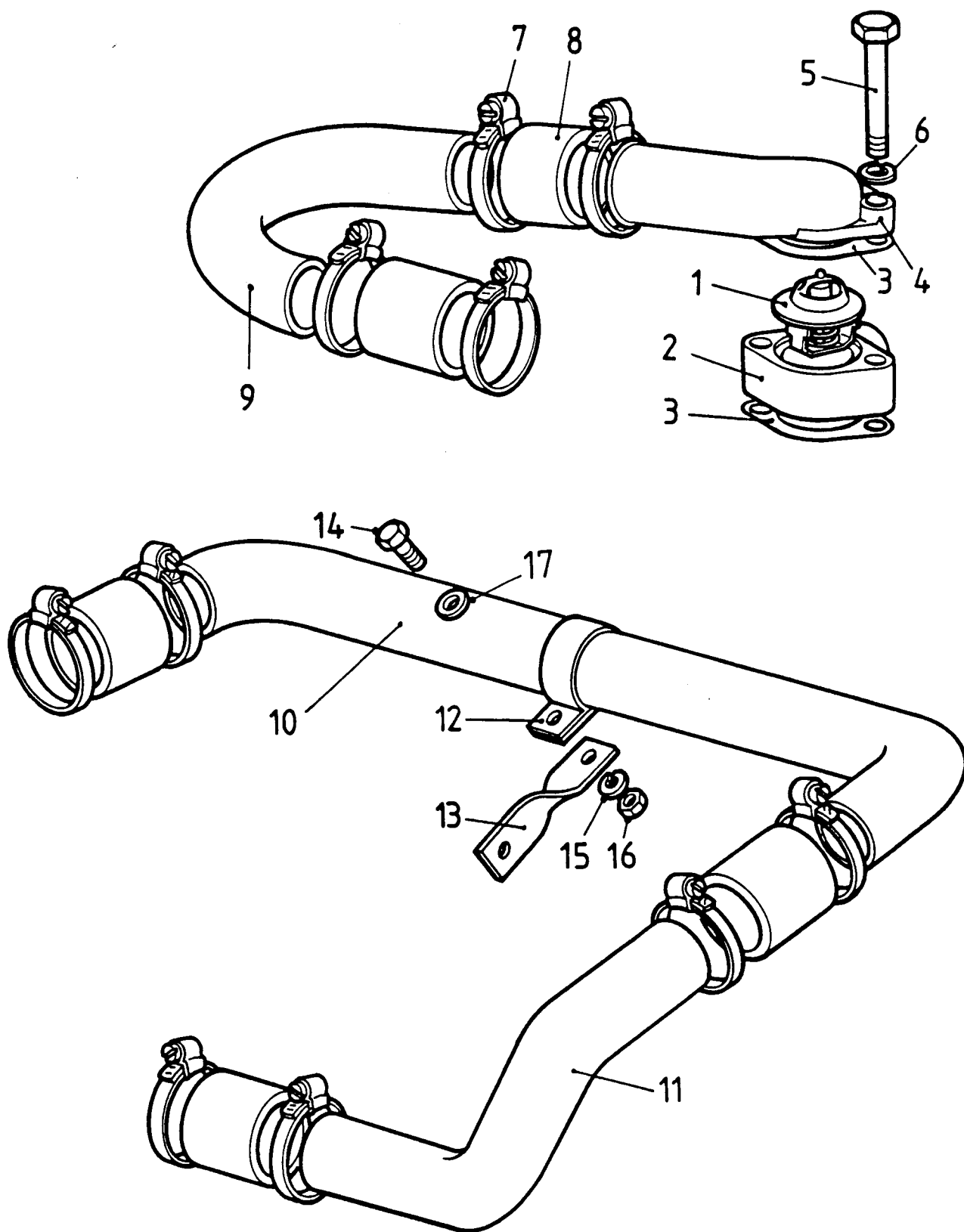
STARTER MOTOR (TYPE 80 ENGINES)

THORNYCROFT

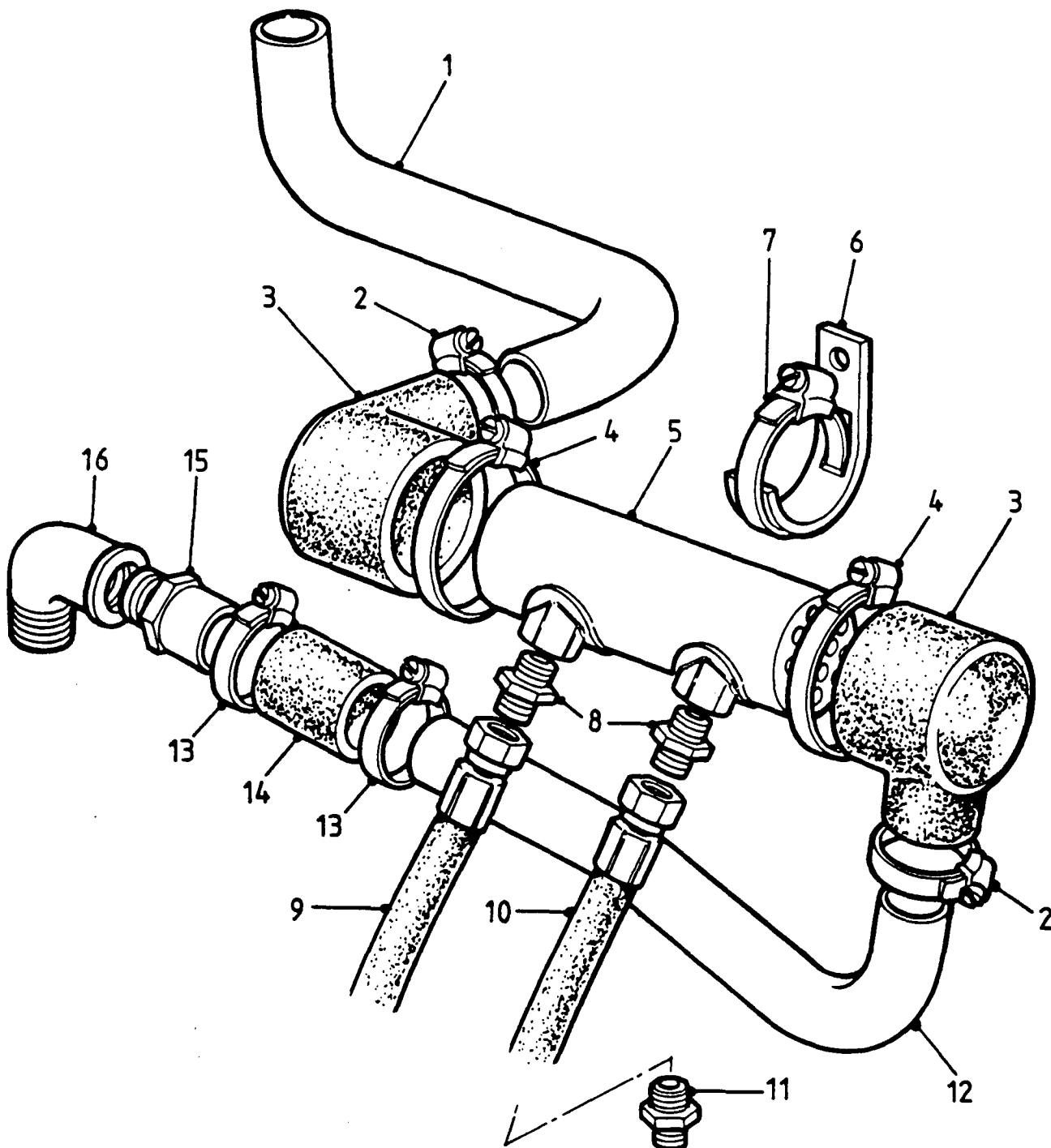
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 48	
			60D	60E	80D	80E
1-22	MM409413	Starter Assy (12V-2.0kW):M	-	-	1	1
1	MD607631	Screw Set	-	-	1	1
2	MM502452	Bracket Assy, Front	-	-	1	1
3	MD607633	Lever Assy	-	-	1	1
4	MD607446	Spring Set	-	-	1	1
5	MM502441	Bracket Assy, Centre	-	-	1	1
6	MD607634	Switch Assy	-	-	1	1
7	MD607635	Bolt Set	-	-	1	1
8	MD607636	Armature Set	-	-	1	1
9	MD607643	Bearing, Front	-	-	1	1
10	MD607638	Bearing, Rear	-	-	1	1
11	MM502438	Shaft Assy, Clutch Set	-	-	1	1
12	MM502439	Pinion Set	-	-	1	1
13	ME700124	Stopper Set	-	-	1	1
14	MM502442	Gear Set	-	-	1	1
15	MD607642	Pinion Shaft Assy	-	-	1	1
16	MM502443	Gear	-	-	1	1
17	ME700125	Cover Set	-	-	1	1
18	MM502453	Yoke Assy	-	-	1	1
19	ME700127	Holder Assy, Brush	-	-	1	1
20	ME700128	Spring, Brush	-	-	4	4
21	MD607645	Bracket Assy, Rear	-	-	1	1
22	MM502444	Packing	-	-	1	1



[illegible]

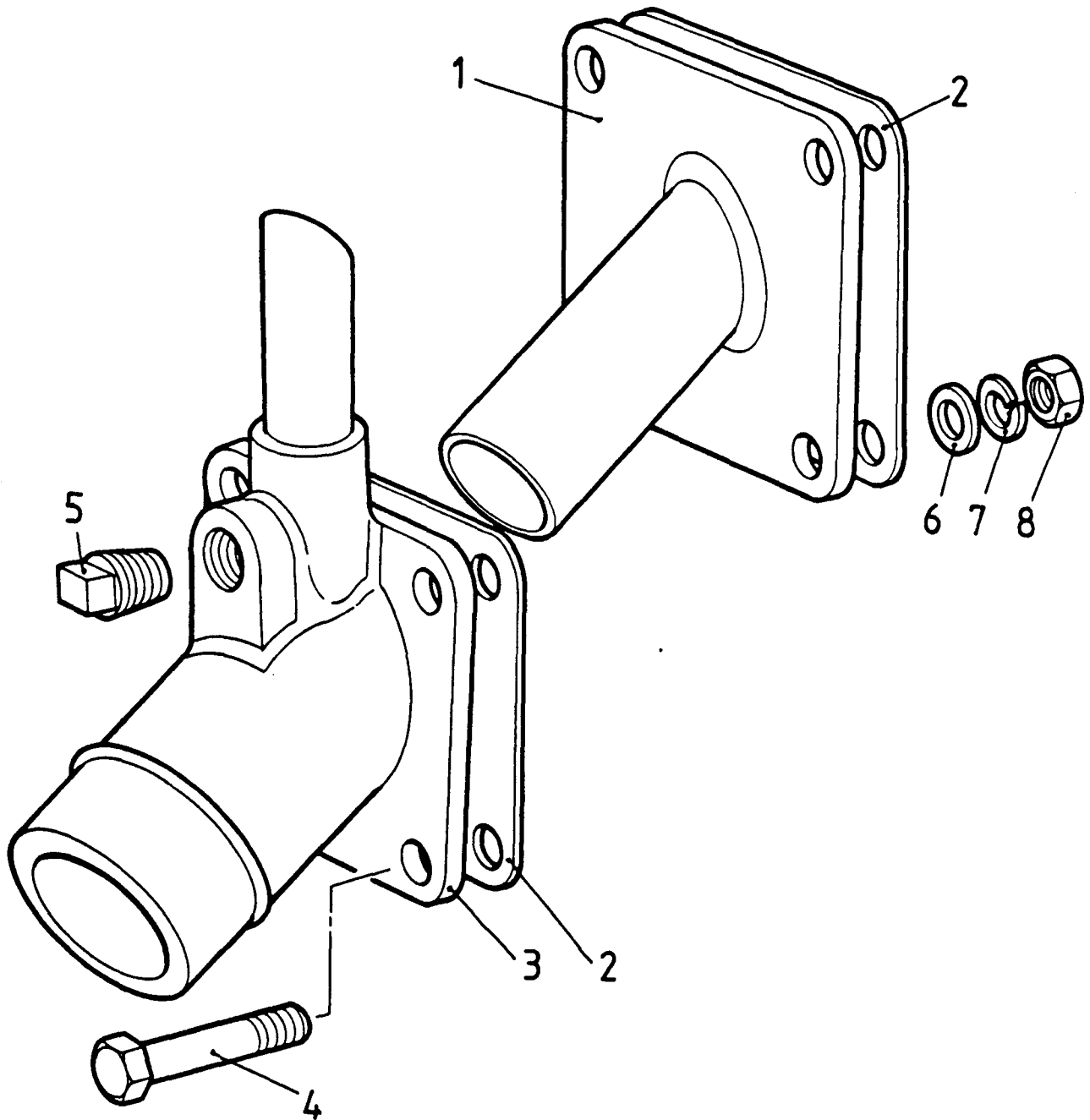


[illegible]

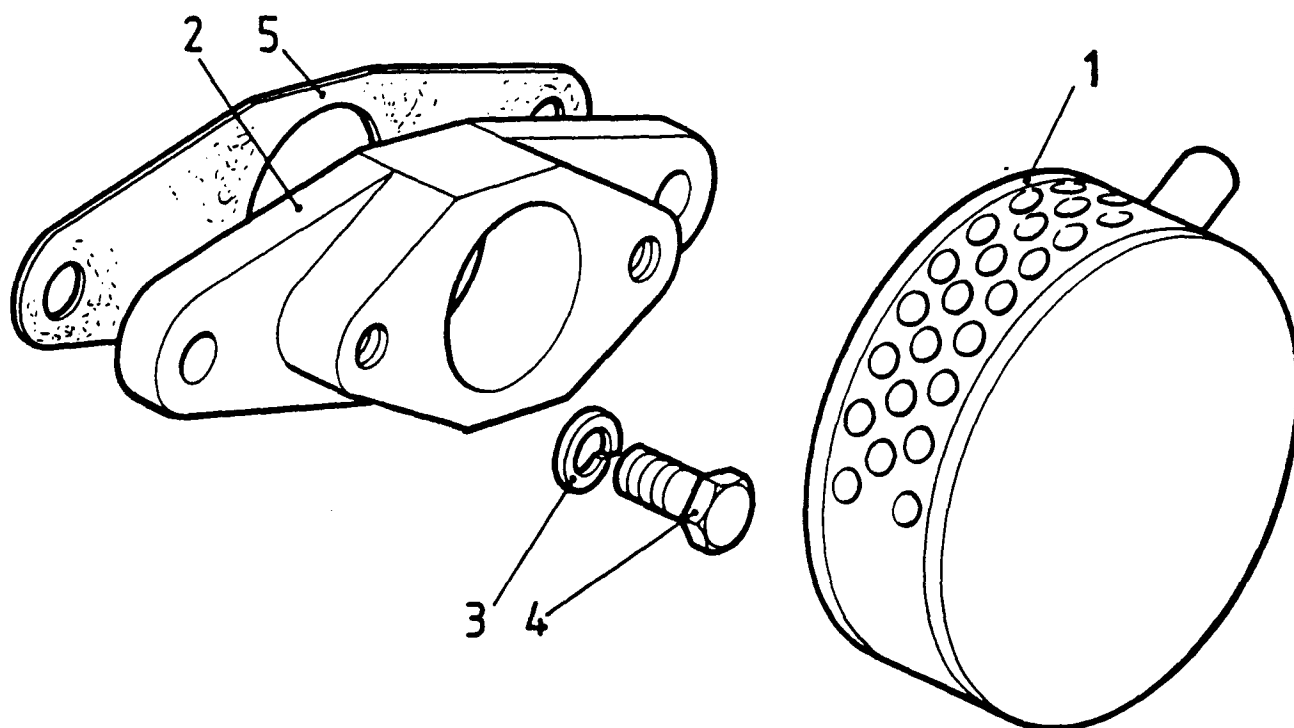


THORNYCROFT

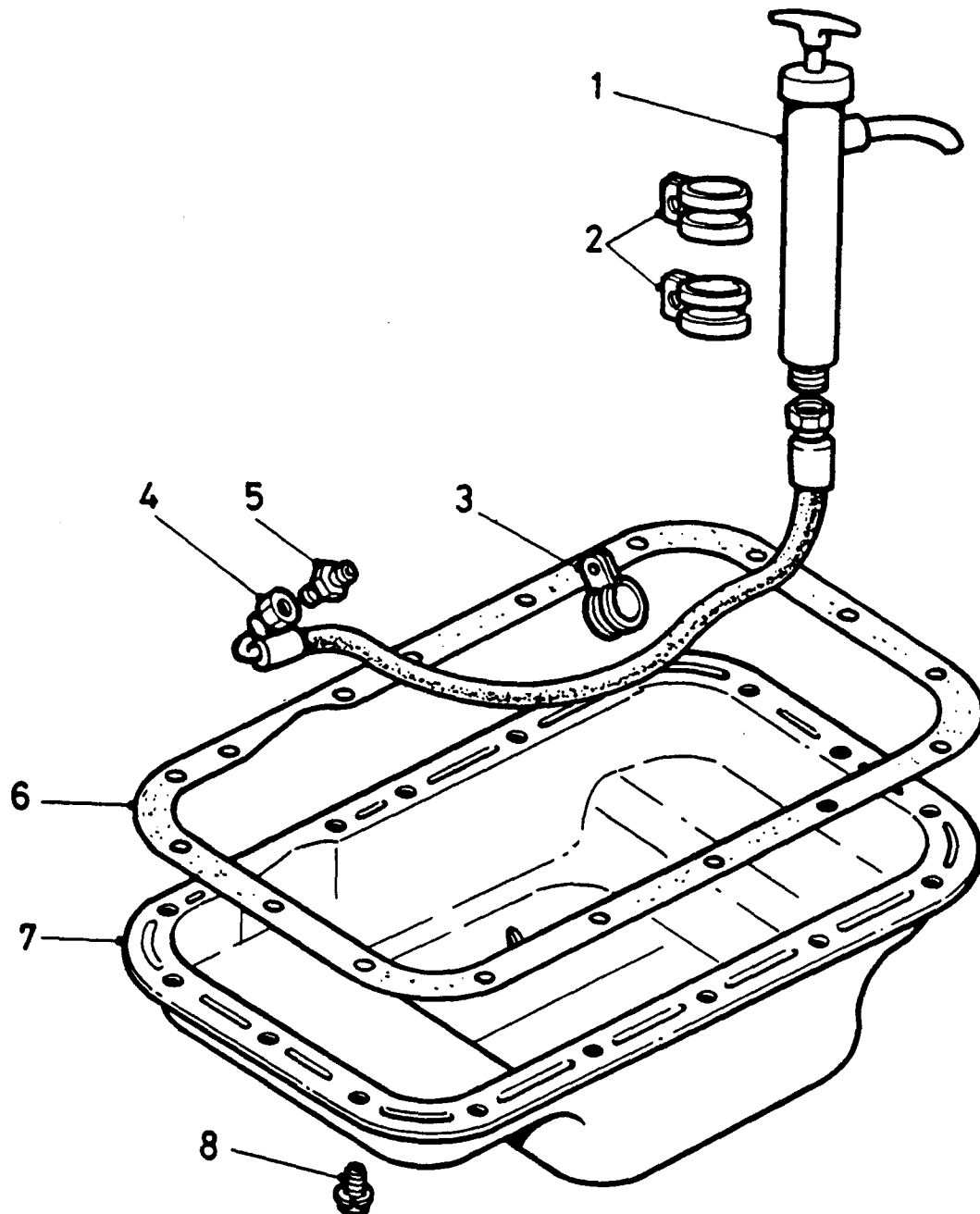
[illegible]



[illegible]

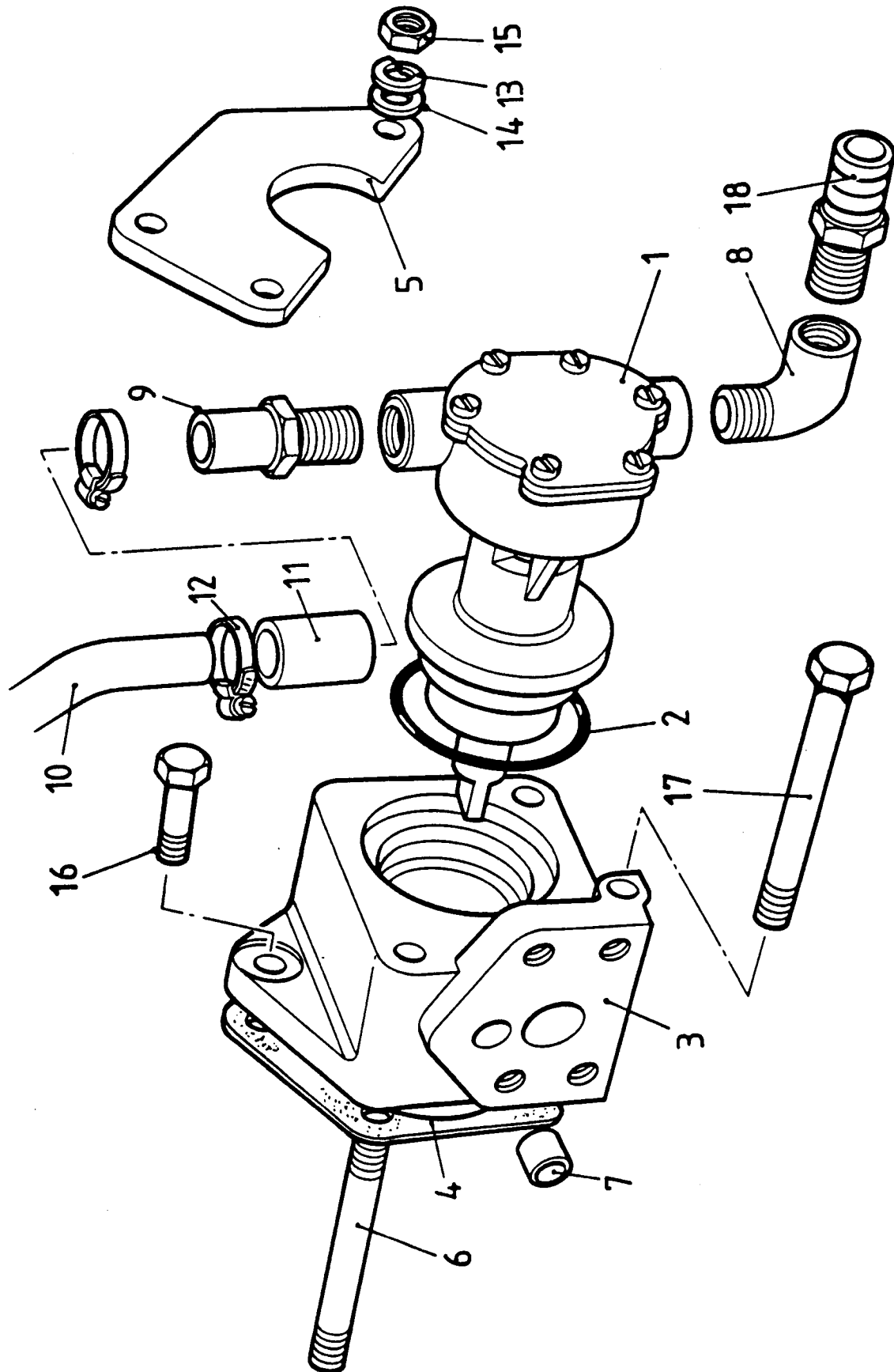


[illegible]

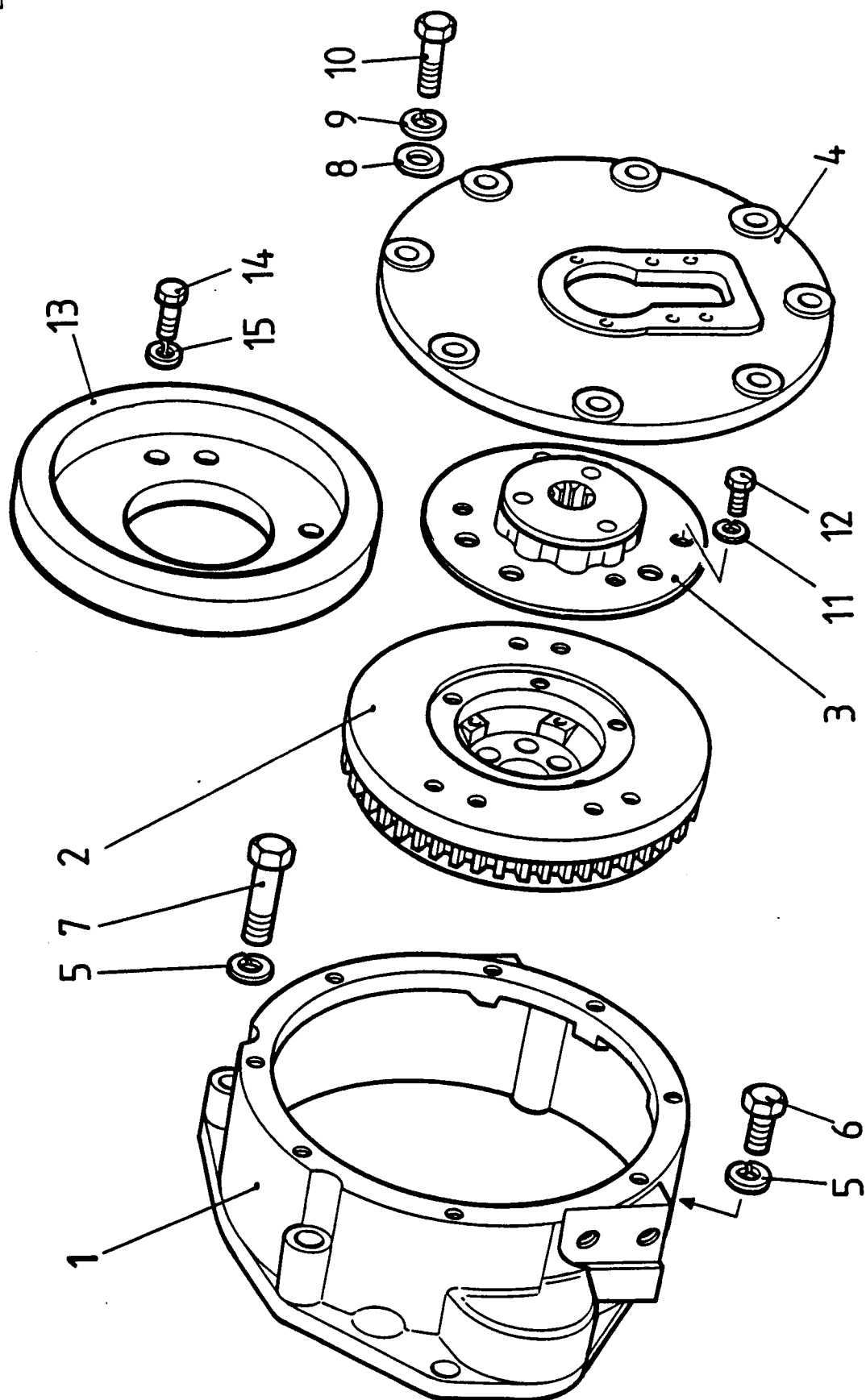


THORNYCROFT

[illegible]

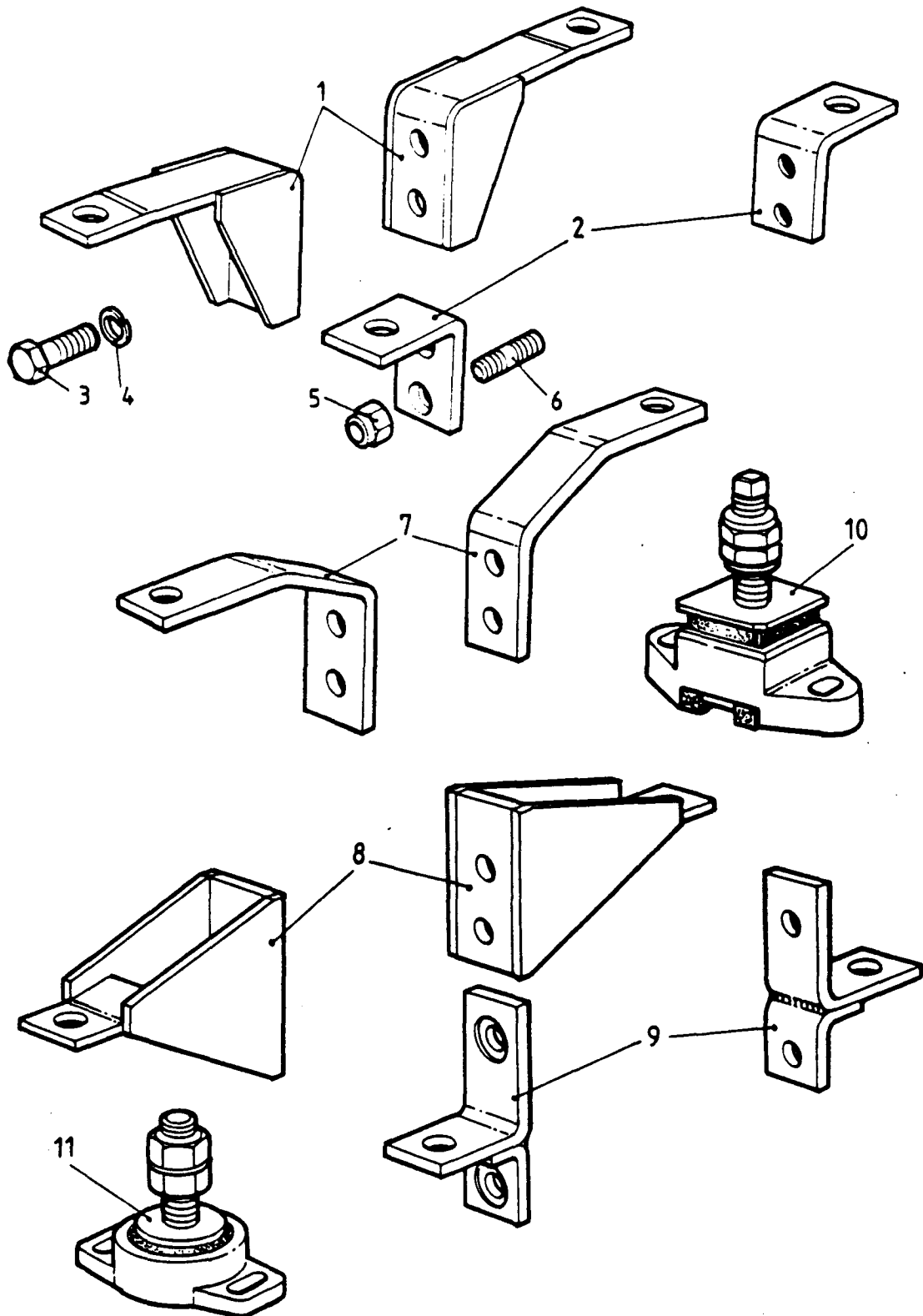


[illegible]

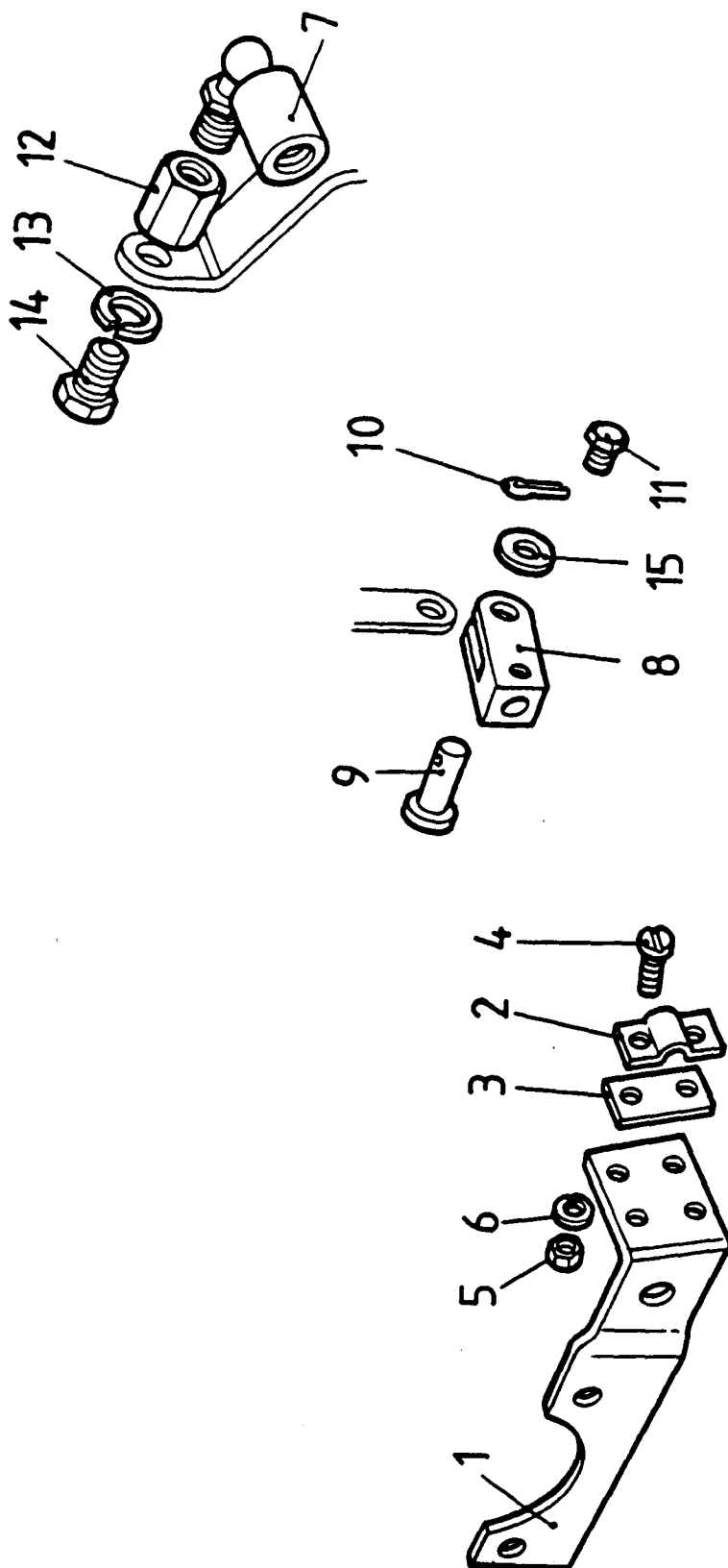


THORNYCROFT

[illegible]

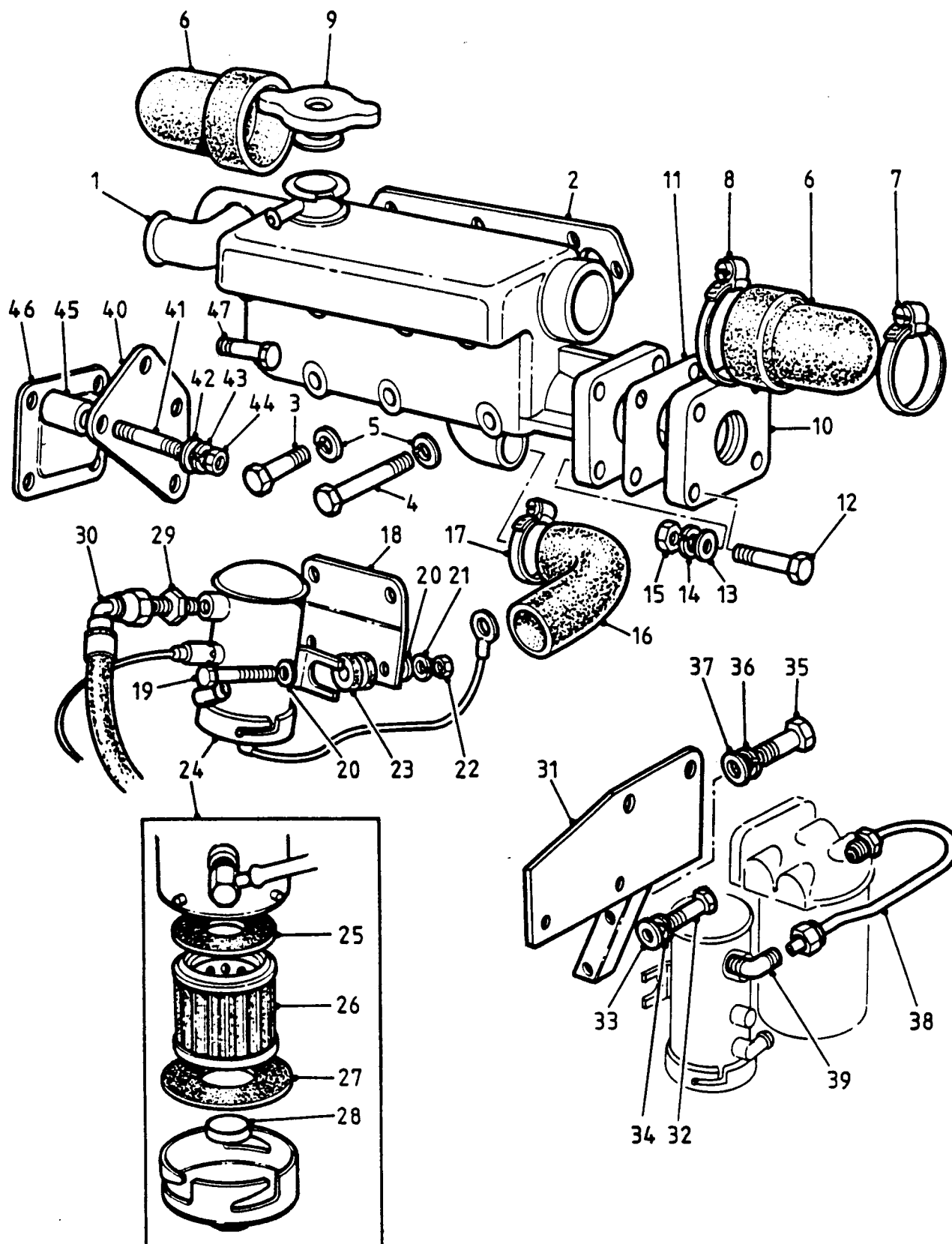


[illegible]



THORNYCROFT

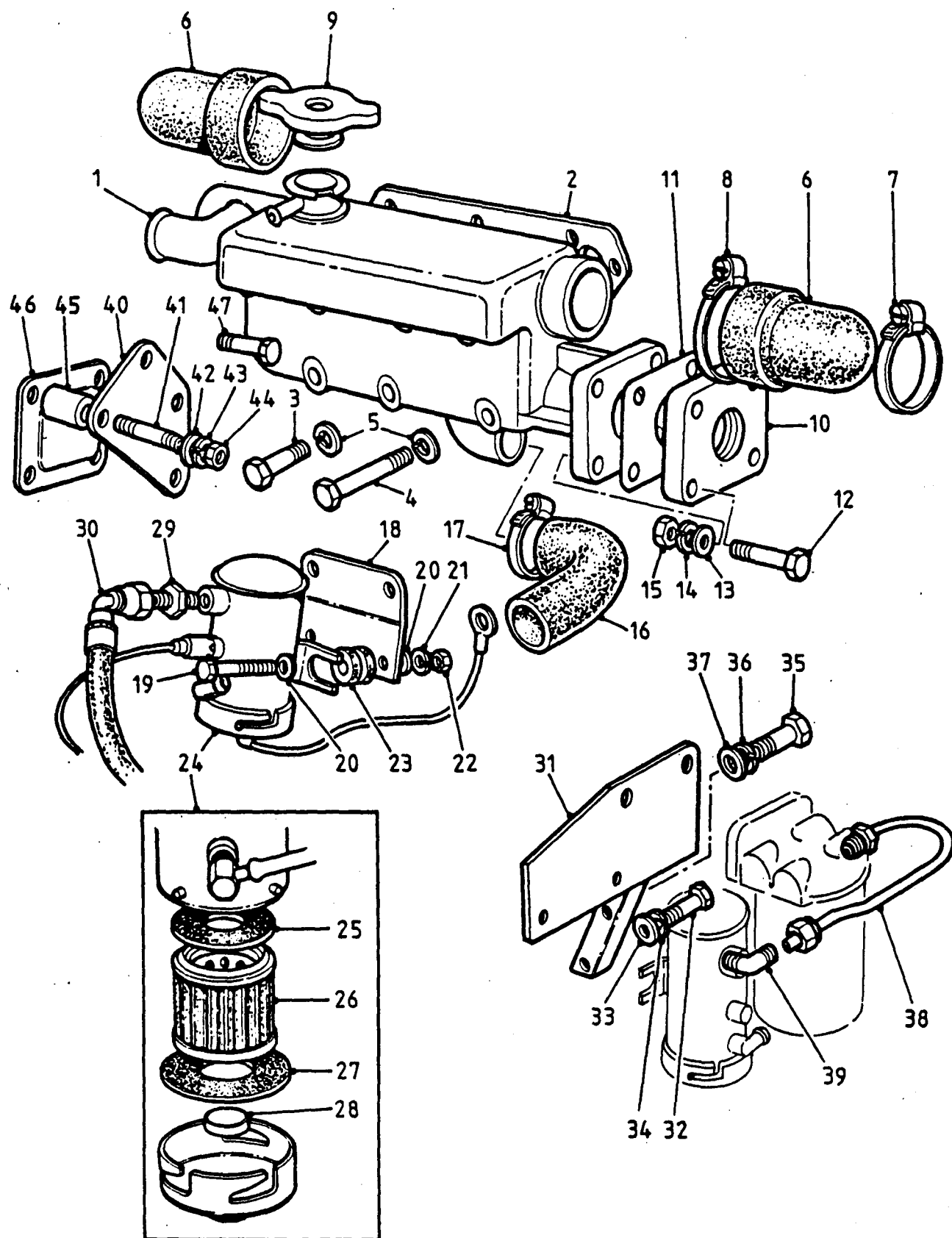
[illegible]



EXTERNAL COOLED MANIFOLD, ELECTRIC FUEL LIFT PUMP
(SIDE AND REAR MOUNTED)



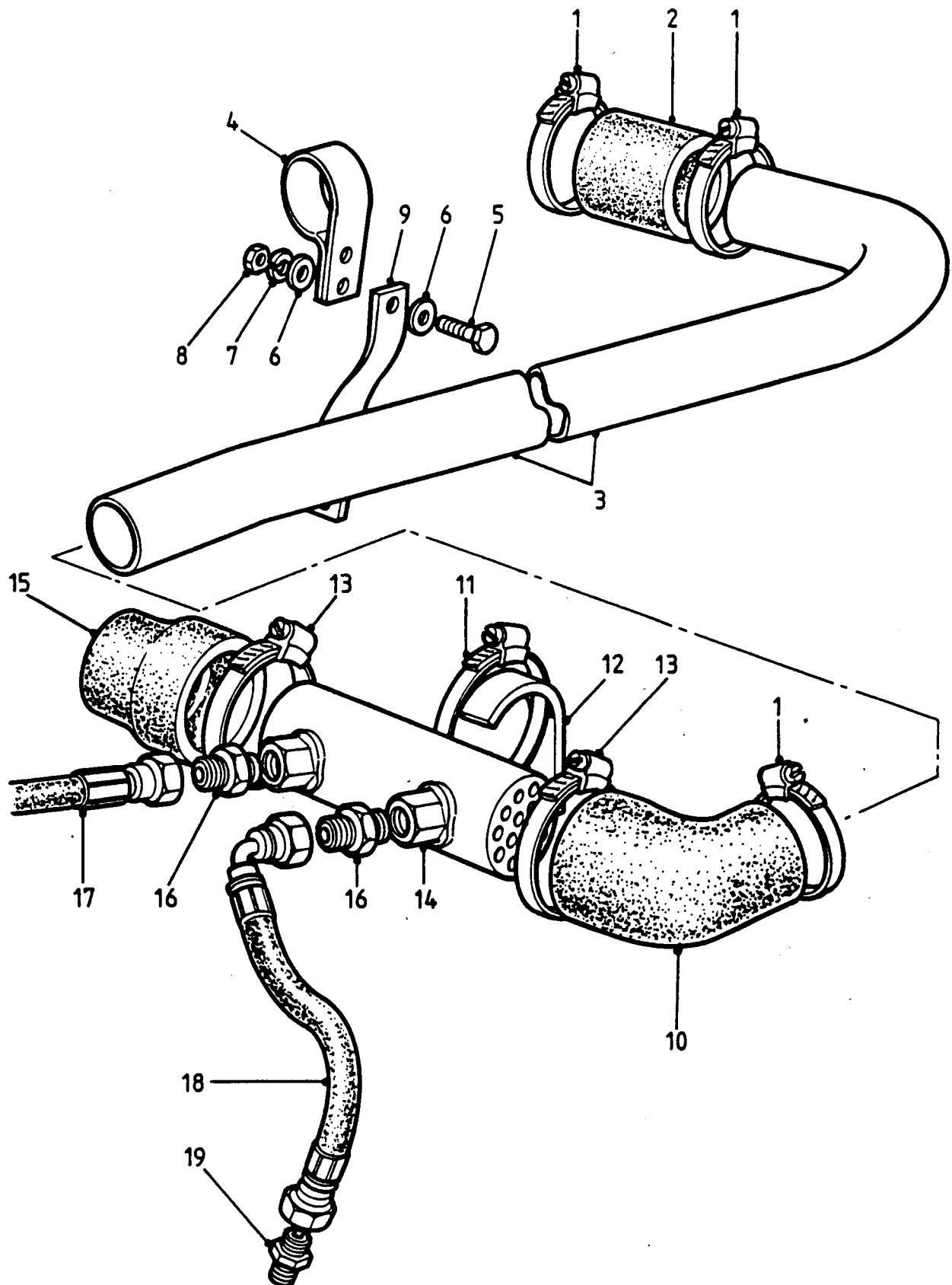
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 70	
			60D	60E	80D	80E
1	54384045	Manifold	1	1	-	-
	54384044	Manifold	-	-	1	1
2	54012295	Joint	1	1	-	-
	54012296	Joint	-	-	1	1
3	M8S x 30	Screw	1	1	1	1
4	M8B x 100	Bolt	5	5	7	7
5	WSM8	Washer, Spring	6	6	8	8
6	54384055	End Cap	2	2	2	2
7	54384056	Hose Clip	2	2	2	2
8	54384057	Hose Clip	2	2	2	2
9	54382602	Filler Cap	1	1	1	1
10	54010654	Flange, Dry Exhaust	1	1	1	1
11	54009121	Joint	1	1	1	1
12	M8S x 40	Screw	4	4	4	4
13	WPM8	Washer, Plain	4	4	4	4
14	WSM8	Washer, Spring	4	4	4	4
15	M8N	Nut	4	4	4	4
16	54009231	Elbow	1	1	1	1
17	54381167	Hose Clip	1	1	1	1
18	54012408	Bracket, Fuel Lift Pump (Side Mounted)	1	1	1	1
19	M6 x 30	Screw	2	2	2	2
20	WPM6	Washer, Plain	4	4	4	4
21	WSM6	Washer, Spring	2	2	2	2
22	M6N	Nut	2	2	2	2
23	-	Flex Mount, Incl on Lift Pump Assy	2	2	2	2
24	54012894	Fuel Lift Pump	1	1	1	1
25	MM409881	Gasket	1	1	1	1



EXTERNAL COOLED MANIFOLD, ELECTRIC FUEL LIFT PUMP
(SIDE AND REAR MOUNTED)

THORNYCROFT

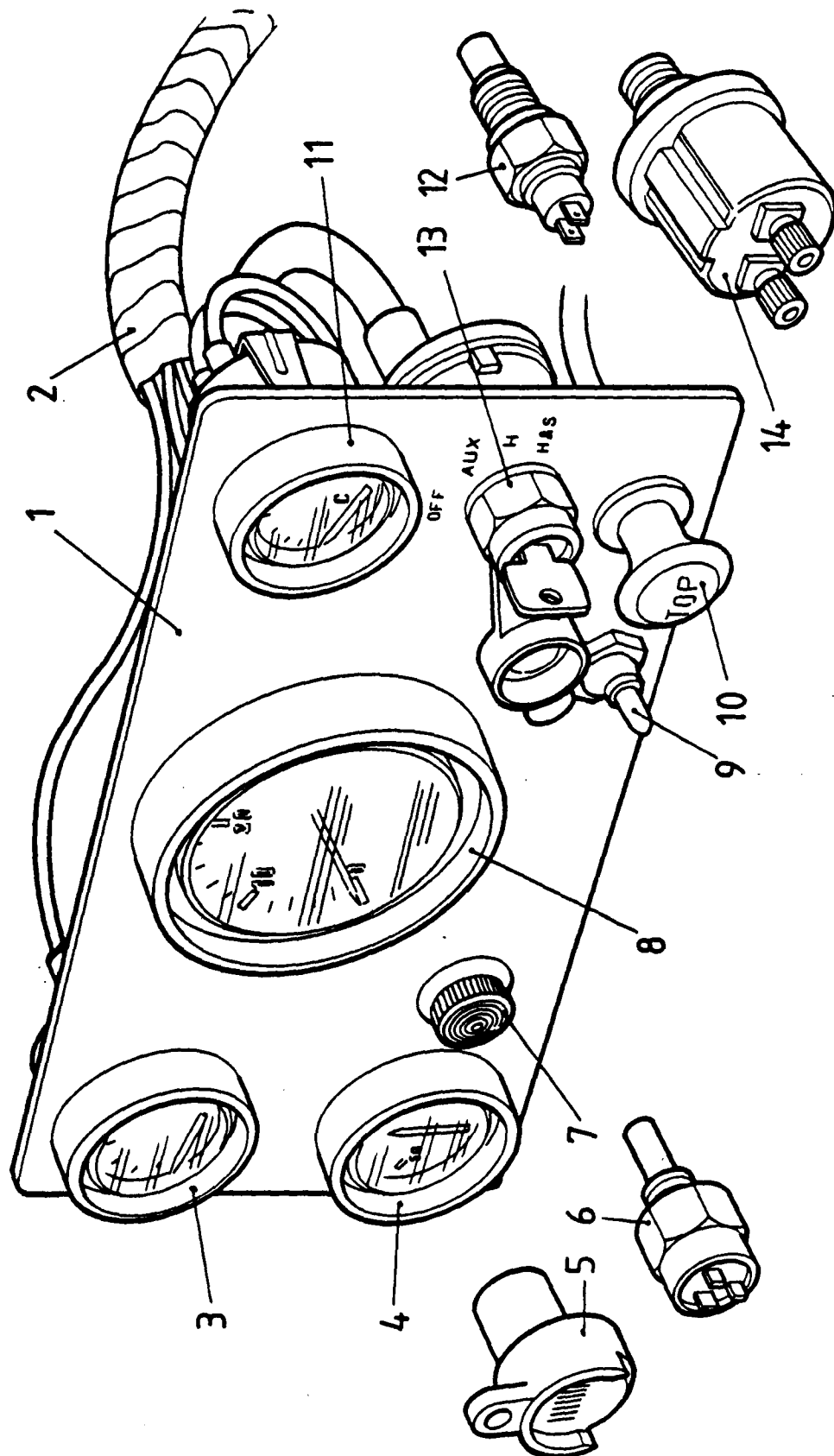
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 72	
			60D	60E	80D	80E
26	MM408992	Filter	1	1	1	1
27	MM409880	Gasket	1	1	1	1
28	MM409882	Magnet	1	1	1	1
29	54384227	Union (Side Mounted)	1	1	1	1
30	54384119	Fuel Pipe, Lift Pump to Fltr (Side Mtg)	1	1	1	1
31	54012896	Bracket (Fuel Filler & Lift Pump)	1	1	1	1
32	M8B x 40	Bolt	1	1	1	1
33	WPM8	Washer, Plain	1	1	1	1
34	WSM8	Washer, Spring	1	1	1	1
35	M10x125x45	Bolt	1	1	1	1
36	WSM 10	Washer, Spring	1	1	1	1
37	WPM 10	Washer, Plain	1	1	1	1
38	54012897	Fuel Pipe, Lift Pump to Fuel Filter	1	1	1	1
39	54384050	Elbow, Stud	1	1	1	1
40	54012407	Bracket	1	1	1	1
41	54012329	Stud	2	2	2	2
42	WPM8	Washer, Plain	3	3	3	3
43	WSM8	Washer, Spring	3	3	3	3
44	M8N	Nut	2	2	2	2
45	54010509	Spacer	3	3	3	3
46	K7910451	Cover, Plate	1	1	1	1
47	M8B x 60	Bolt	1	1	1	1




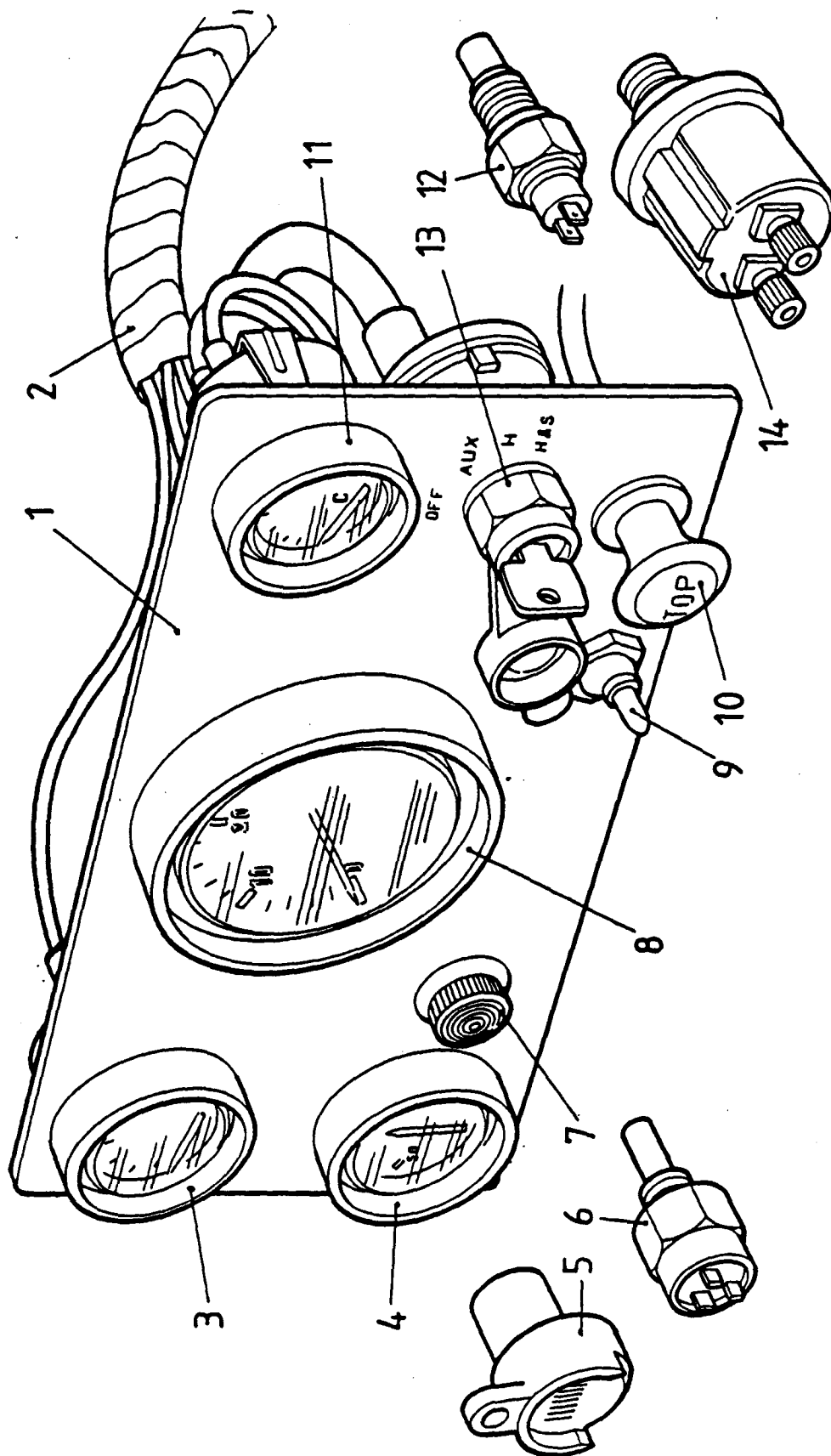
OIL COOLER AND PIPES FOR DELTA AND PRM 160
GEARBOXES (EFWC ENGINES)

THORNYCROFT

REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 74	
			60D	60E	80D	80E
1	54381453	Hose Clip	3	3	3	3
2	54383703	Hose	1	1	1	1
3	54012973	Water Pipe, Pump to Cooler	1	1	-	-
	54012567	Water Pipe, Pump to Cooler	-	-	1	1
4	54011072	Clip 'P'	1	1	1	1
5	M6S x 16	Screw	2	2	2	2
6	WPM6	Washer, Plain	4	4	4	4
7	WSM6	Washer, Spring	2	2	2	2
8	M6N	Nut	2	2	2	2
9	54011867	Strap	1	1	1	1
10	54010200	Elbow	1	1	1	1
11	54381453	Hose Clip	1	1	1	1
12	54011127	Support Bracket	1	1	1	1
13	54381452	Hose Clip	2	2	2	2
14	54383648	Oil Cooler	1	1	1	1
15	54010194	End Cover	1	1	1	1
16	54381592	Union	2	2	2	2
17	54381589	Hose Long (PRM 160 Gearbox)	1	1	1	1
	54381599	Hose Long (Delta Gearbox)	1	1	1	1
18	54381599	Hose Short (PRM 160 Gearbox)	1	1	1	1
	54384240	Hose Short (Delta Gearbox)	1	1	1	1
19	54381593	Union (PRM 160 Gearbox)	2	2	2	2
	54382594	Union (Delta Gearbox)	2	2	2	2



INSTRUMENT PANEL						
REF. No.	PART No.	DESCRIPTION	ENGINE & Qty. Req'd.		PAGE 76	
			60D	60E	80D	80E
		STANDARD INSTRUMENTS				
1	54012624	Instrument Panel, Standard	1	1	1	1
2	54012610	Panel, Harness	1	1	1	1
3	54383756	Oil Pressure Gauge	1	1	1	1
4	54383757	Ammeter	1	1	1	1
5	54382288	Alarm	1	1	1	1
6	54382439	Temperature, Switch Alarm	1	1	1	1
7	54383460	Warning Light	1	1	1	1
	54383536	Bulb	1	1	1	1
8	54382877	Tachometer	1	1	1	1
9	54383034/5	Switch/Seal	1	1	1	1
10	54381715/16	Stop Cable (16')	1	1	1	1
11	54383755	Water Temperature Gauge	1	1	1	1
12	54381375	Water Temperature, Sender	1	1	1	1
13	54383777	Key Start	1	1	1	1
14	54381376	Oil Pressure Sender	1	1	1	1
15	54380810	Adaptor, Water Temperature Sender	1	1	1	1
		BASIC INSTRUMENTS				
	54012625	Instrument Panel	1	1	1	1
	54383460	Lamp Holder	1	1	1	1
	54383536	Bulb 12V	1	1	1	1
	54383756	Oil Pressure Gauge	1	1	1	1
	54383755	Water Temperature Gauge	1	1	1	1
	54383034	Toggle Switch	1	1	1	1
	54383035	Seal, Switch	1	1	1	1
	54012610	Harness, Panel Lighting	1	1	1	1
	54012612	Fused Feed For Panel	1	1	1	1



[illegible]