

**PARTS MANUAL**  
FOR  
**JACOBS ENGINE BRAKE**  
**MODEL**  
**20**

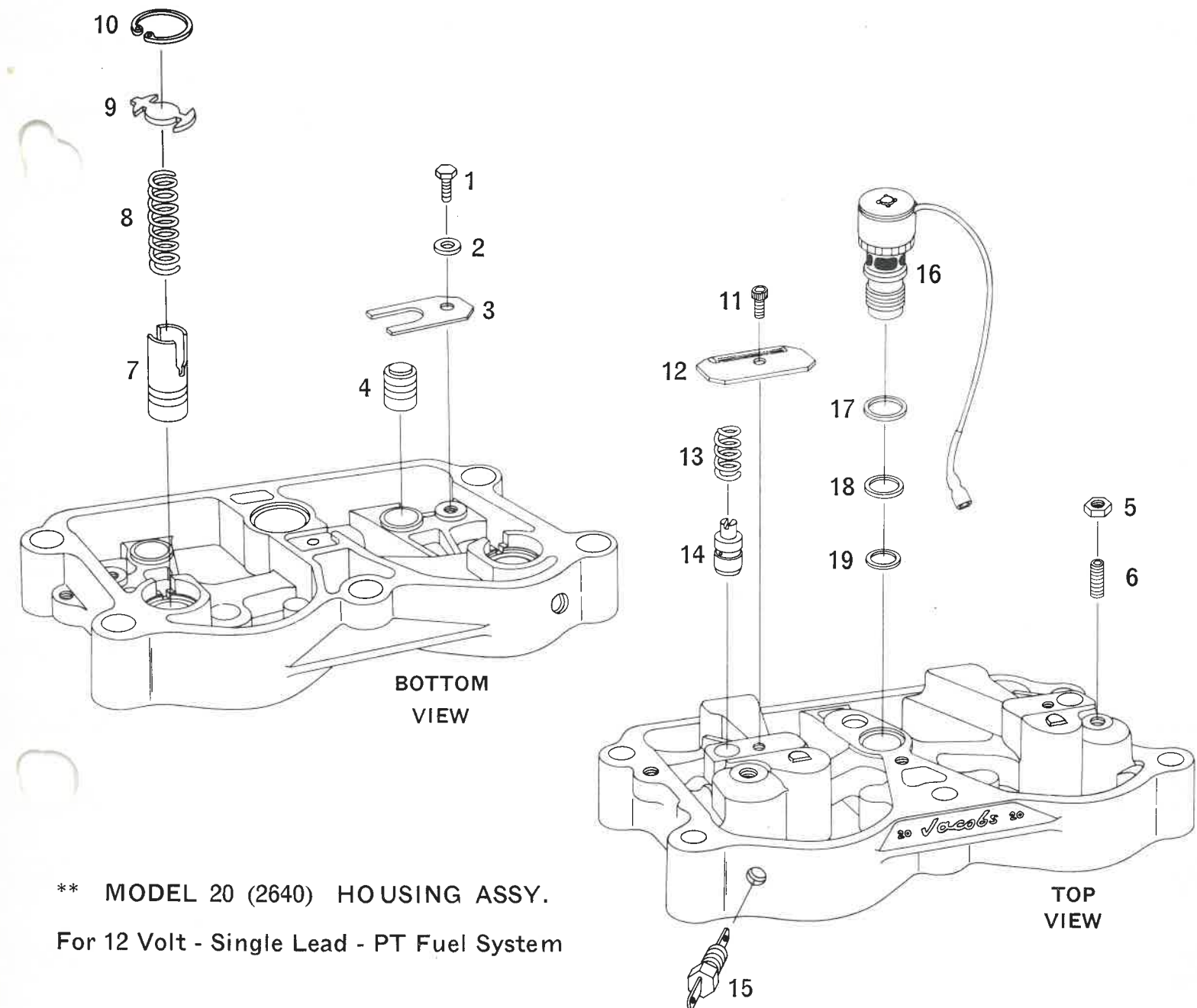


Manufactured by:  
ENGINE BRAKE DIVISION  
**THE JACOBS MANUFACTURING COMPANY**  
West Hartford, Connecticut U.S.A. 06110

PARTS MANUAL  
MODEL 20 — JACOBS ENGINE BRAKE

When ordering complete MODEL 20 ENGINE BRAKE KITS please specify:

1. Model No. of Cummins Engine.
2. Model and type of Turbocharger — If applicable — Model (T-506, T-590, T-50, VT-50) Type (Top mount or Side Mount)
3. Supercharger—If applicable.
4. Compression Release—If applicable (Either Round Shaft or 12 Point Head Shaft—see Page 6.)
5. Positive or Negative Ground Electrical System.
6. 12 or 24 Volt Electrical System.
7. Type of Adjusting Screws— $\frac{5}{8}$ " - 18 Thd. or  $\frac{1}{2}$ " - 20 Thd.
8. PT, SD or DD Fuel System.
9. Solid Stem (A) or Hollow Stem (B) Crossheads
  - (A) Prior to Engine Serial Number 227236.
  - (B) After Engine Serial Number 227236.

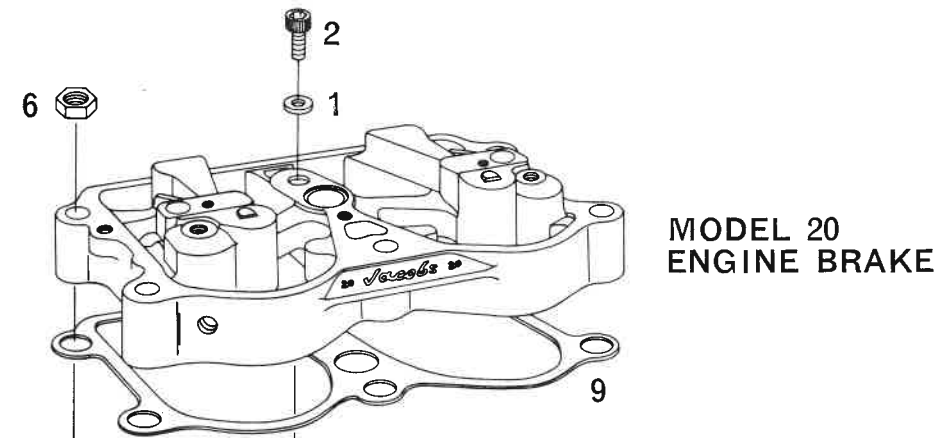


**\*\* MODEL 20 (2640) HOUSING ASSY.**  
For 12 Volt - Single Lead - PT Fuel System

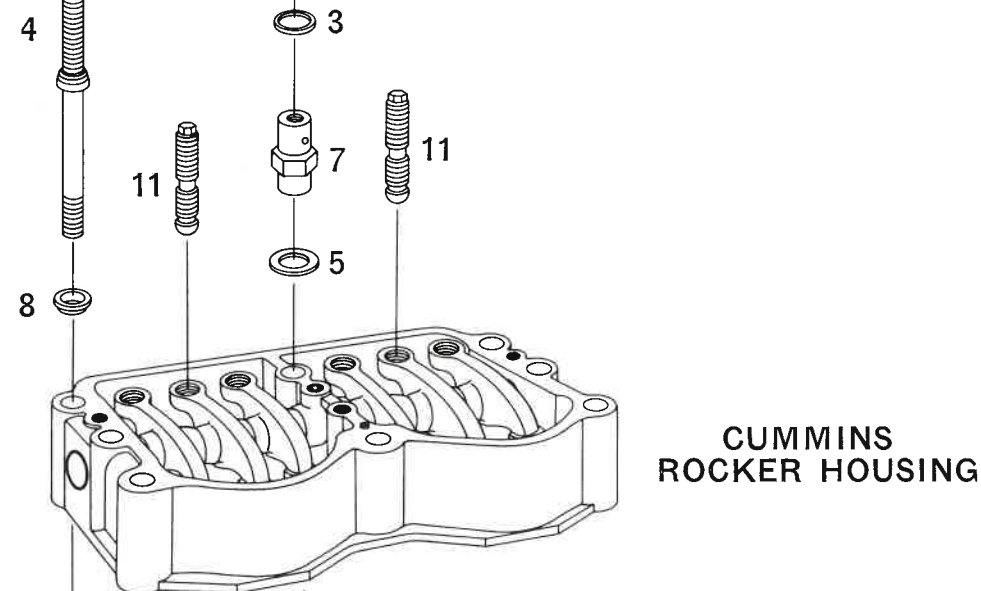
Illus. No.	Part No.	Units Per Housing Assy.	Part Name	Illus. No.	Part No.	Units Per Housing Assy.	Part Name
1	1492	2	Capscrew—Hex Head (Spring Ret.)	12	1189	2	Cover—Control Valve
2	1030	2	Washer—Plain (Spring Ret.)	13	1012	2	Spring—Control Valve
3	1011	2	Spring—Master Piston	14	1200	2	Spool Assy.—Control Valve
4	1017	2	Piston—Master	15	2299	1	Terminal Bushing Leadout
5	1026	2	Nut—Hex Jam (Slave Adj. Screw)	16	2686	1	Valve Assy.—Solenoid
6	1031	2	Set Screw—Flat Pt. Hex Soc.	17	1081	1	Seal—Ring (Solenoid, upper)
7	*1484	2	Piston—Slave	18	1082	1	Seal—Ring (Solenoid, center)
8	1022	2	Spring—Slave Piston	19	1083	1	Seal—Ring (Solenoid, lower)
9	1289	2	Retainer—Slave Piston Spring	†	1282	1	Screen—Solenoid
10	1023	2	Ring—Retaining	†	1283	1	Retainer—Solenoid screen
11	1033	2	Capscrew—Hex Soc. Head (Air Bleed)				

\* Part No. 1486 is  $\frac{1}{16}$ " shorter than No. 1484 (for milled cylinder heads).  
 \*\* (2641) Hsg. Assy. for 24 Volt System with PT Fuel Pump uses 2687 Solenoid.  
 (2642) Hsg. Assy. for 24 Volt—2 Wire Elect. System—with PT Fuel Pump uses 2688 2 Lead Solenoid.  
 † Replacement Parts for all Solenoids.

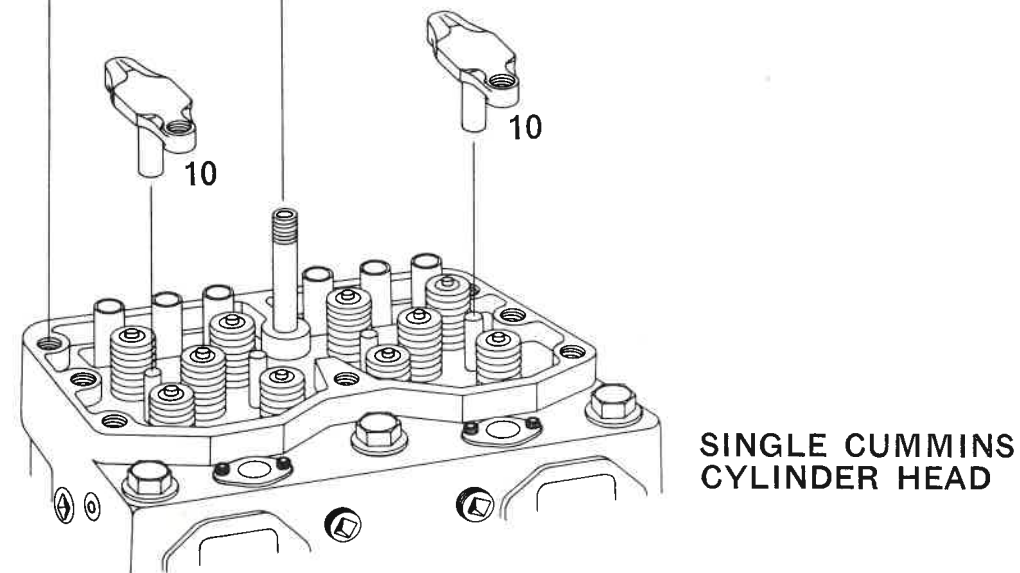
**HOUSING ATTACHING PARTS GROUP  
AND ENGINE CONVERSION PARTS**



**MODEL 20  
ENGINE BRAKE**



**CUMMINS  
ROCKER HOUSING**



**SINGLE CUMMINS  
CYLINDER HEAD**

**1041 HOUSING ATTACHING PARTS GROUP**

Illus. No.	Part No.	Units Per 6 Cyl. Engine	Part Name
1	1049	3	Washer - Oil Tube Ext. Capscrew
2	1050	3	Capscrew - Hex. Sol. Hd. (Oil Tube Ext.)
3	1051	3	Seal - Ring (Oil Tube Cavity)
4	1055	15	Stud - Rock. Hsg. to Brake Hsg.
5	1091	3	Washer - Oil Tube Extension
6	1094	15	Nut - Hex (Rocker Hsg. & Brake Hsg.)
7	1422	3	Extension - Oil Tube
8	2514	15	Washer - Bearing (For Aluminum Rocker Housings only)

**ENGINE CONVERSION PARTS**

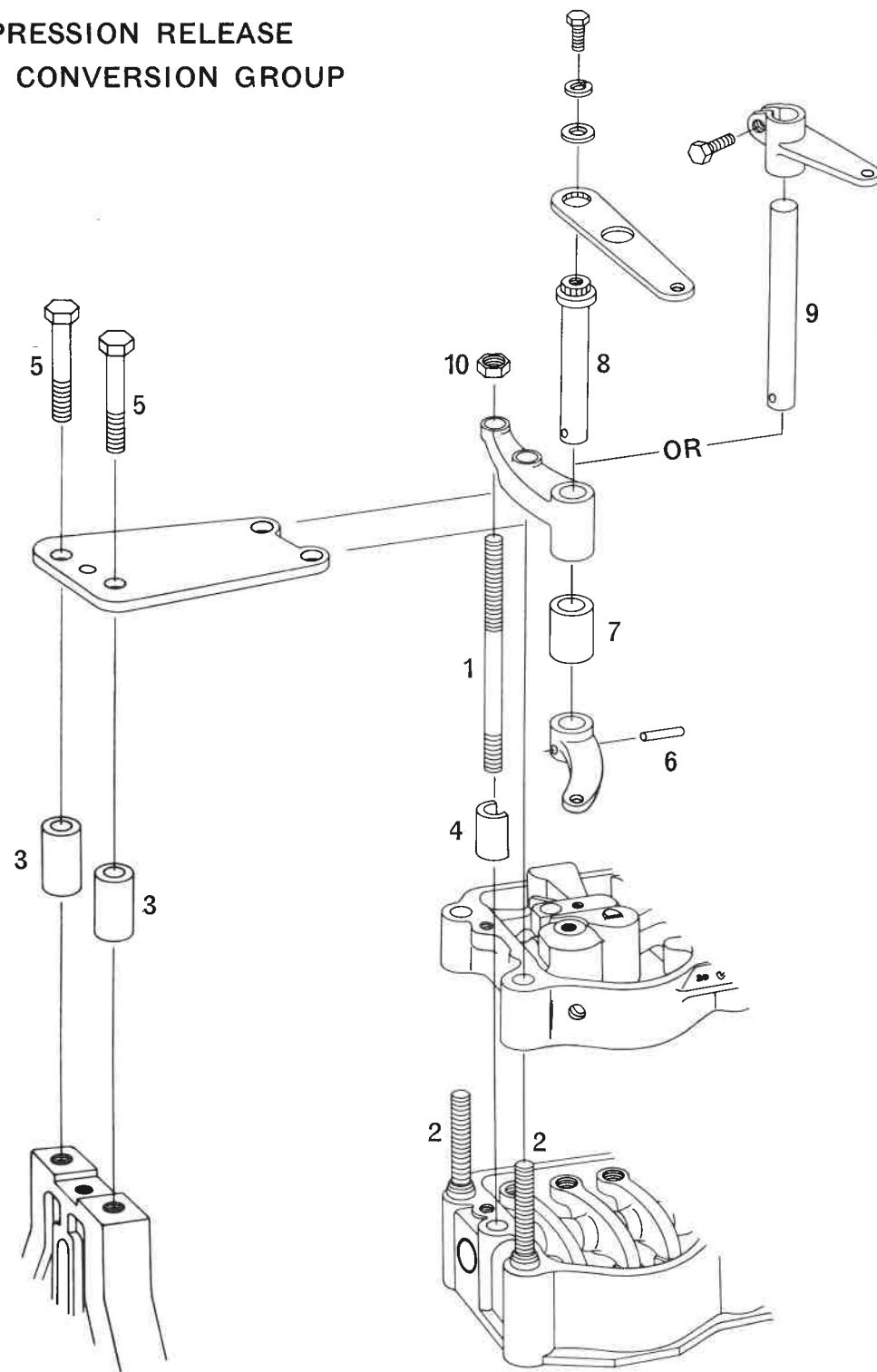
	9	1243	3	Gasket - Rock. Hsg. to Brake Hsg.
Select To Match Engine	10	1003	6	Crosshead - Exh. Valve (Solid Stem see A)
	10	1239	6	Crosshead - Exh. Valve (Hollow Stem see B)
Select To Match Engine	11	1015	6	Screw Inj. Adj. $\frac{5}{8}$ " - 18 Thd.
	11	1764	6	Screw Inj. Adj. $\frac{1}{2}$ " - 20 Thd.

A — Prior to Engine Serial No. 227236 use 1003

B — After Engine Serial No. 227236 use 1239



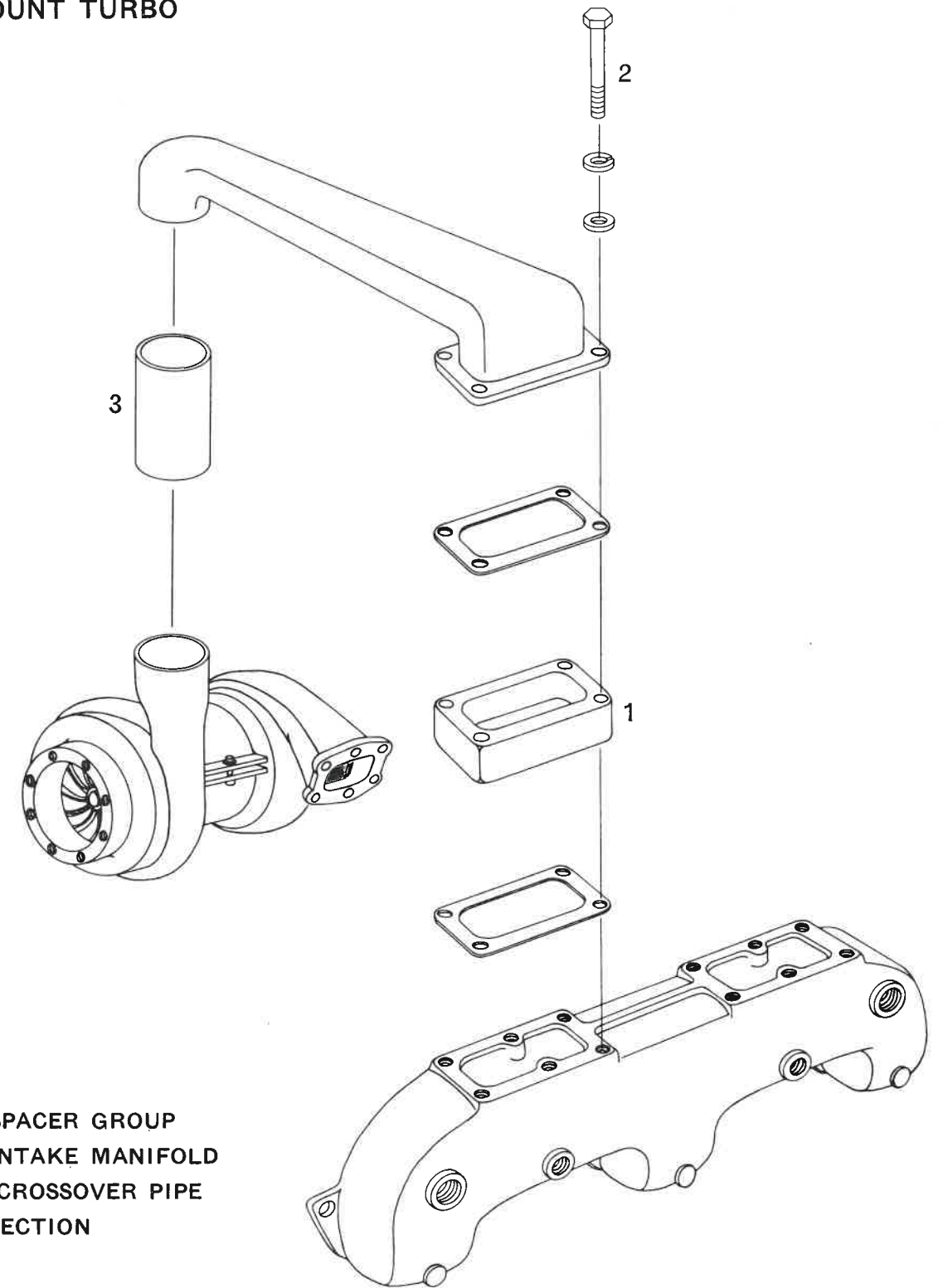
2696 & 1175 COMPRESSION RELEASE  
BELLCRANK AND CONVERSION GROUP



2696			
Illus. No.	Part No.	No. Req. Per Engine	Part Name
1	1268	1	Stud
2	1058	2	Stud
3	1063	2	Spacer
4	1062	1	Spacer
5	1064	2	Capscrew
6	1061	1	Roll Pin
7	1173	1	Spacer
8	2685	1	Shaft (12 Pt. Head)
10	1094	1	Nut - Hex.

1175			
Illus. No.	Part No.	No. Req. Per Engine	Part Name
1	1268	1	Stud
2	1058	2	Stud
3	1063	2	Spacer
4	1062	1	Spacer
5	1064	2	Capscrew
6	1061	1	Roll Pin
7	1173	1	Spacer
9	1172	1	Shaft (Round)
10	1094	1	Nut - Hex.

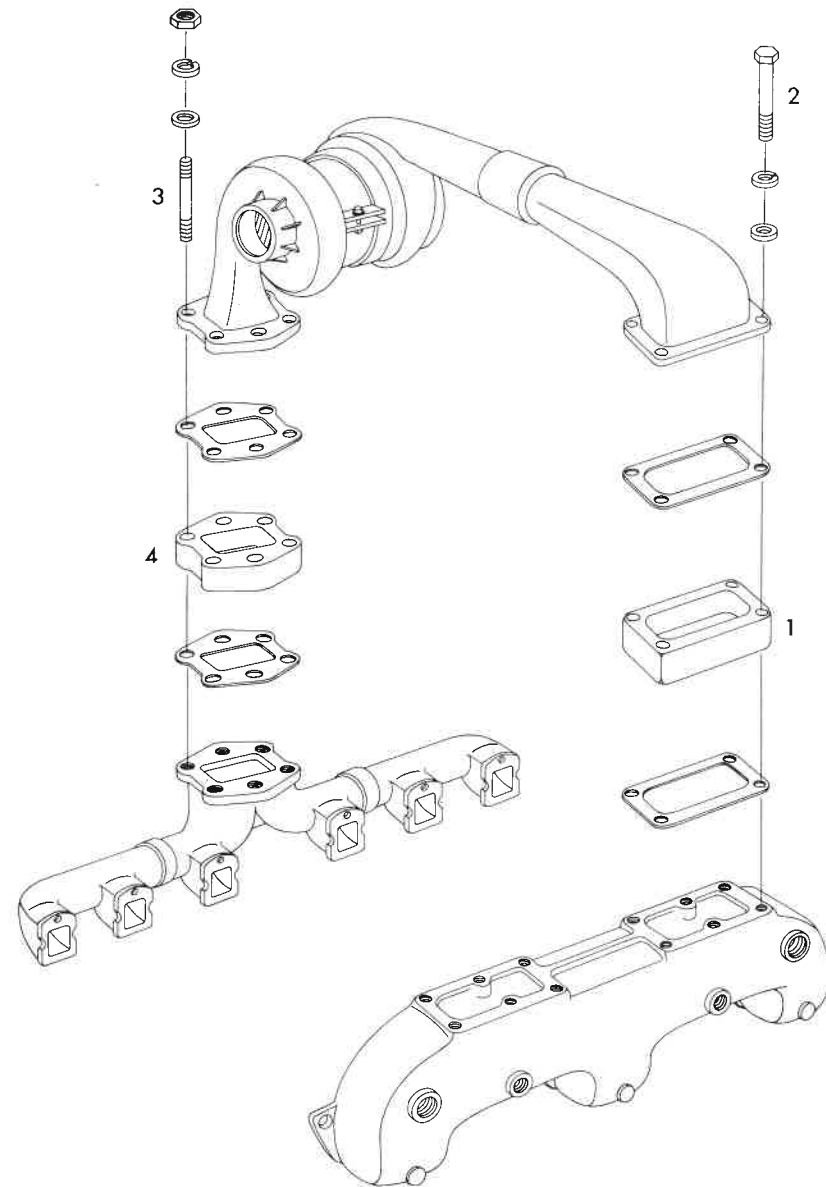
SIDE MOUNT TURBO



1072 SPACER GROUP  
AIR INTAKE MANIFOLD  
AND CROSSOVER PIPE  
CONNECTION

Illus. No.	Part No.	No. Req. Per Engine	Part Name	
1	*1065	1	1 5/8" Spacer — Air Int. Man. Con.	
2	1032	4	Cap screw — Hex. Head	
* Optional Spacer Sizes — 1714 (1 inch) — 2805 (1/2 inch)				
SIDE MOUNT TURBO CONNECTION				
Select to				
Match	3	1229	1	3 3/8" I.D. Connect. (T-590, T-50, VT-50)
Turbo	3	1255	1	3" I.D. Connect. (T-506)

**TOP MOUNT TURBO**



**1072 — INTAKE MANIFOLD SPACER GROUP**  
(One required with all Turbo Models)

Illus. No.	Part No.	No. Req. Per 6 Cyl. Engine	Part Name
1	1065	1	1 5/8" Spacer — Air Intake Manifold Connection
2	1032	4	Capscrew — Hex. Head

Select one Exhaust Manifold Spacer Group below to match Turbo.

**1170 EXHAUST MANIFOLD SPACER GROUP**  
(For use with T-590 and T-50 Top Mount Turbochargers)

3	1167	6	Stud — Turbo to Exhaust Manifold
4	1165	1	Spacer — Turbo to Exhaust Manifold

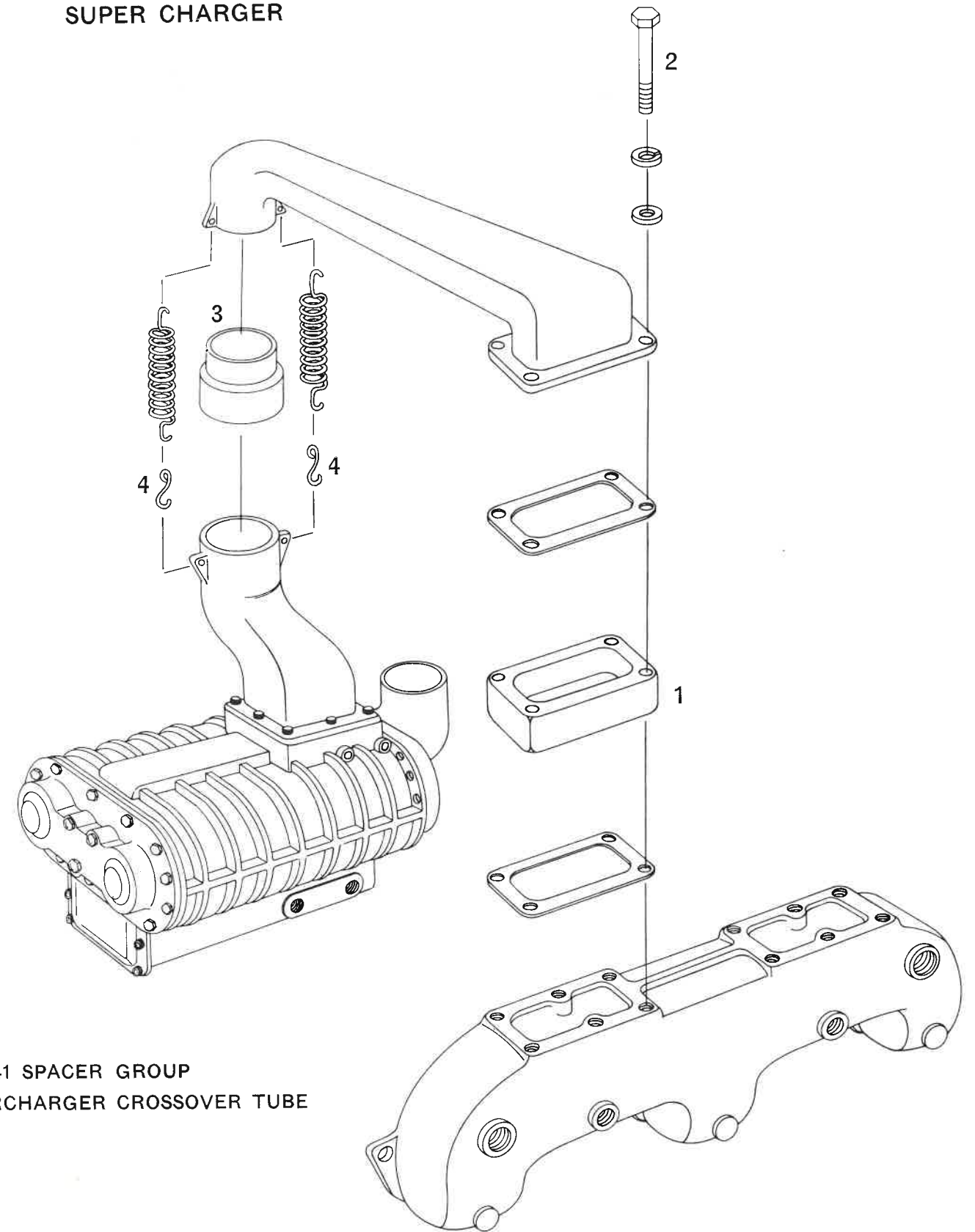
**1171 EXHAUST MANIFOLD SPACER GROUP**  
(For use with T-506 Top Mount Turbochargers)

3	1167	6	Stud — Turbo to Exhaust Manifold
4	1166	1	Spacer — Turbo to Exhaust Manifold

**2947 — 4 HOLE — EXHAUST MANIFOLD SPACER GROUP**  
(For use with VT-50 Top Mount Turbo Chargers)

3	2899	4	Stud — Turbo to Exhaust Manifold
4	2898	1	Spacer — Turbo to 4 Hole Exhaust Manifold

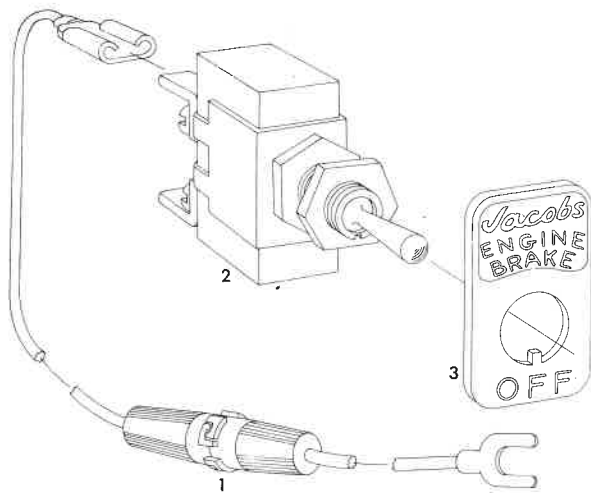
**SUPER CHARGER**



**1141 SPACER GROUP**  
**SUPERCHARGER CROSSOVER TUBE**

Illus. No.	Part No.	No. Req. Per Engine	Part Name
1	1065	1	1 5/8" inch Spacer — Air Int. Man.
2	1032	4	Capscrew — Hex. Head
3	1102	1	Spacer — Supercharger Cross. Tube
4	1103	2	Extension — Supercharger Cross. Tube Spring

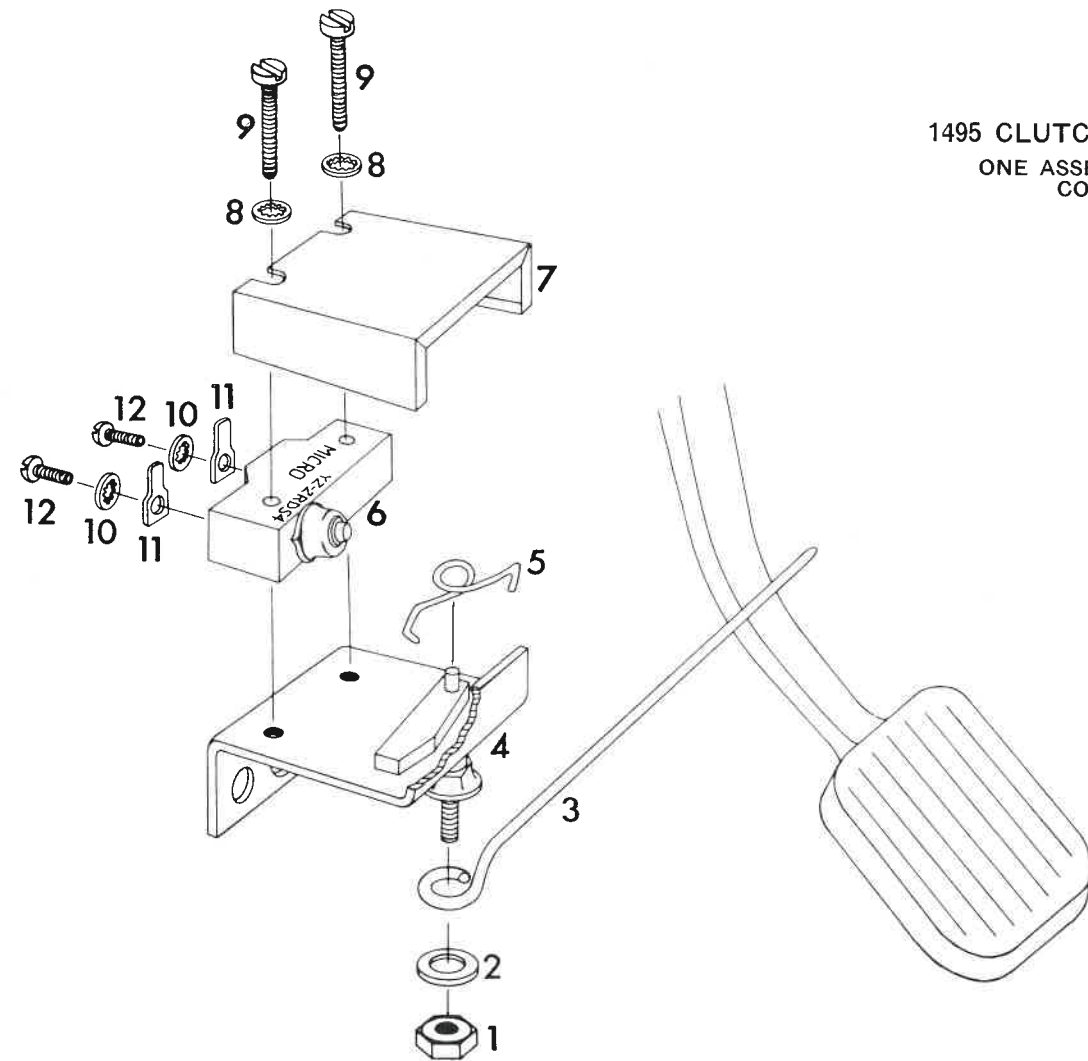




**2100 CAB CONTROL GROUP**  
ONE GROUP PER ENGINE

Illus. No.	Part No.	No. per Grp.	Part Name
Not Illus.	1134	1	Harness (Dash Switch to Clutch Switch)
1	1300	1	Harness (Ignition to Dash Switch)
2	1304	1	Switch — Toggle (Dash Control)
3	1305	1	Plate — Dashboard Control Switch
*	1495	1	Switch Assembly
Not Illus.	1524	1	Harness (Clutch Switch to Switch in Eng. Control Group)

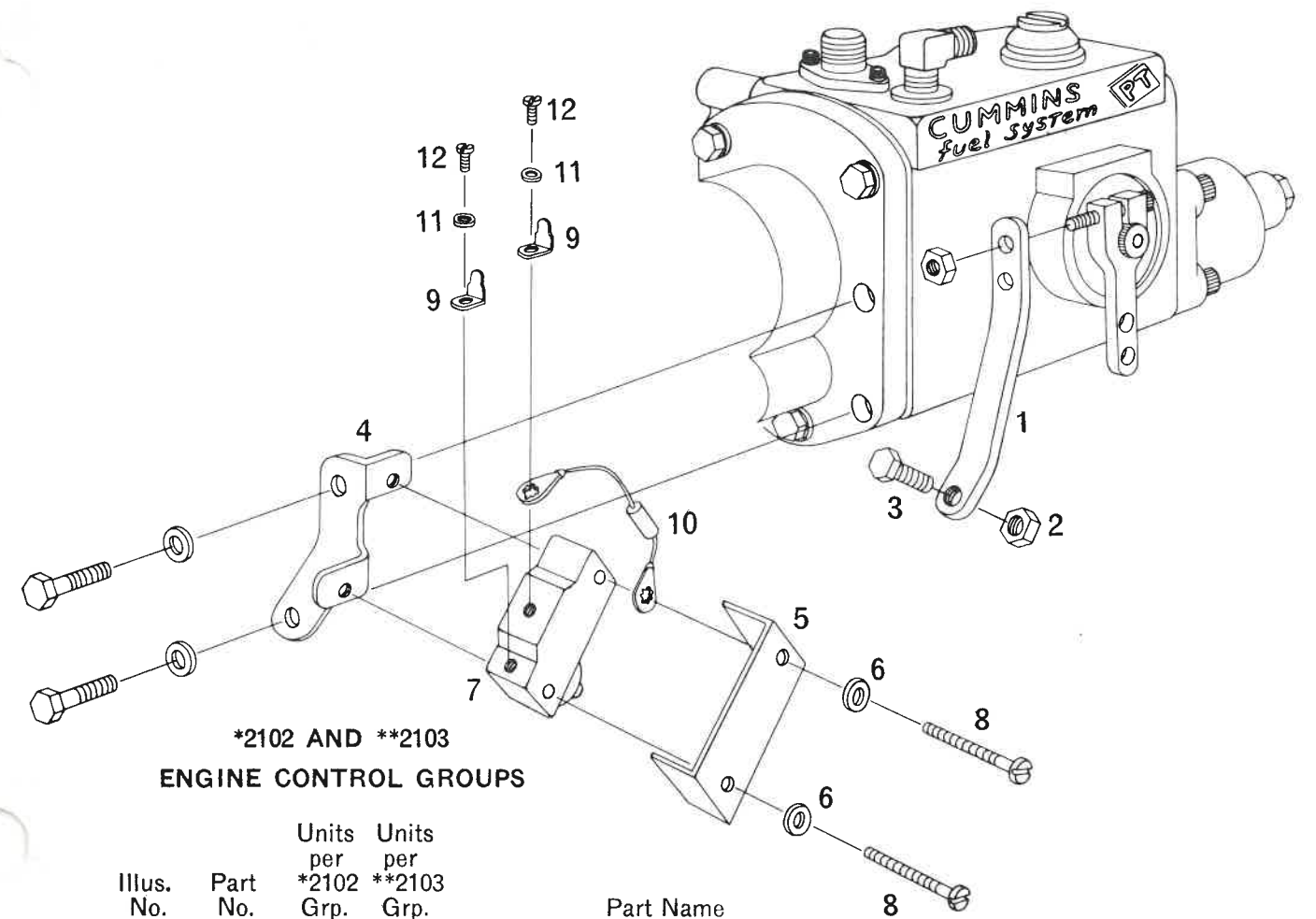
\* See assembly breakdown below.



**1495 CLUTCH SWITCH ASSEMBLY**  
ONE ASSEMBLY PER 2100 CAB CONTROL GROUP

Illus. No.	Part No.	Units per Ass'y	Part Name	Illus. No.	Part No.	Units per Ass'y	Part Name
1	2186	1	Nut—Hex (Switch Actuating)	7	1506	1	Cover—Switch
2	2190	1	Washer—Flat (Switch Actuating)	8	1184	2	Washer—Lock (Switch Assembly)
3	2183	1	Rod— Switch Actuating	9	1244	2	Screw—Tapping (Switch Asselbly)
4	2198	1	Bracket and Lever Machined Assembly Switch Mounting	10	1559	2	Washer—Lock
5	1497	1	Spring—Switch Actuating Lever	11	1040	2	Terminal—Switch
6	1218	1	Switch	12	1558	2	Screw—Switch Terminal

**ENGINE CONTROL GROUPS**



**\*2102 AND \*\*2103 ENGINE CONTROL GROUPS**

Illus. No.	Part No.	Units per *2102 Grp.	Units per **2103 Grp.	Part Name
1	1179	1	1	Arm - Switch Actuator
2	1181	1	1	Nut - Hex (Switch Act. Arm Adj. Screw Lock)
3	1182	1	1	Screw - Hex Hd. Mach. (Switch Act. Arm Adj.)
†	1219	-	1	Switch Assembly
Not Illus.	1955	1	1	Harness - Switch to Engine Brake
†	2112	1	-	Switch Assembly

\*Group 2102 is used with a positive ground electrical system.  
\*\*Group 2103 is used with a negative ground electrical system.  
† See assembly breakdown below.

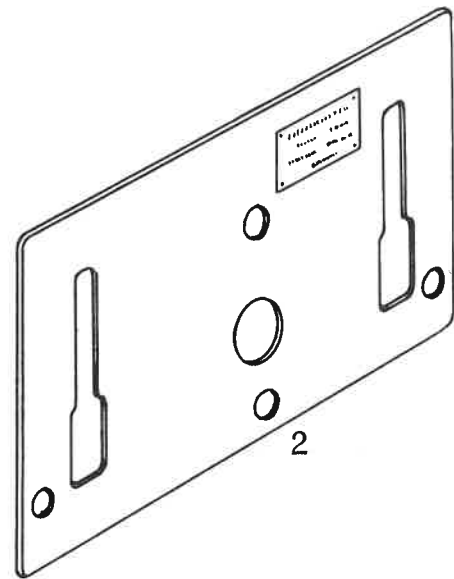
**1219 SWITCH ASSEMBLY (NEGATIVE GROUND)**

Illus. No.	Part No.	Units Per Ass'y	Part Name
4	1178	1	Bracket—Switch Mounting
5	1180	1	Cover—Switch
6	1184	2	Washer—Lock (Switch Assembly Screw)
7	1218	1	Switch
8	1244	2	Screw—Tapping (Screw Assembly)
9	1512	2	Tab—Quick Disconnect
10	1534	1	Diode—Machined Assembly
11	1559	2	Washer—Lock (Switch Terminal Screw)
12	1558	2	Screw—Binder Head (Switch Terminal)

**2112 SWITCH ASSEMBLY (Positive Ground)**

Exactly the same as 1219 Switch Assembly except the Diode is assembled in the opposite direction to accommodate positive ground electrical system.

MISCELLANEOUS ACCESSORIES



Illus. No.	Part No.	Units Per Engine	Part Name
1	—	2	Radiator Ornament
2	1153	1	Gage—Exhaust Rocker Lever Grinding Fixture

1242 TOOL KIT — (Not Illustrated)

Part No.	Quantity Per Kit	Part Name
1853	1	Key — Hex $\frac{5}{32}$ inch
1855	1	Key — Hex $\frac{1}{8}$ inch
1138	1	Key — Hex $\frac{3}{16}$ inch
1140	1	Key — Hex $\frac{3}{8}$ inch
2330	1	Wrench — Solenoid Valve
1137	1	Pliers — Truarc

DISCONTINUED PARTS AVAILABLE FOR REPLACEMENT PURPOSES ONLY

Part No.	Units Per Hsg.	Part Name
1009	4	Cap — Control Valve
1154	1	Orifice

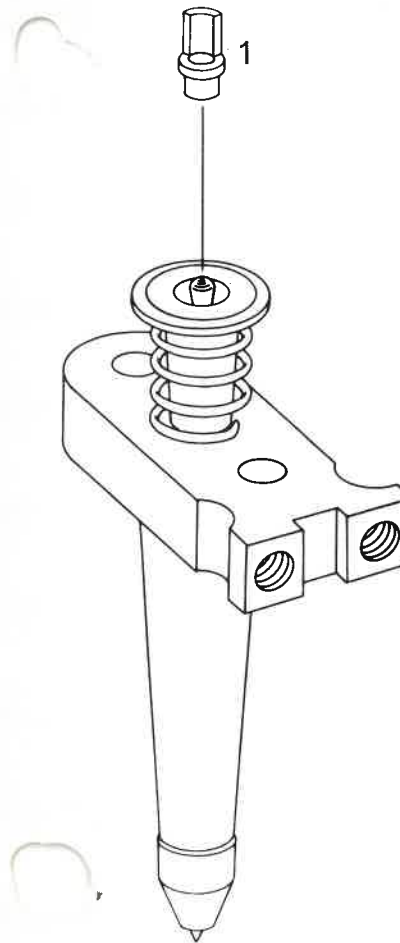
HOUSING ELECTRICAL TERMINAL ASSEMBLY

Part No.	Units Per Hsg.	Part Name
1264	1	Screw — Hex Head Machined
1040	2	Terminal — Solenoid Leadout
1038	2	Washer — Plain
1036	2	Bushing — (Solenoid Terminal Leadout)
1039	1	Nut — Hex (Solenoid Terminal Leadout)

HOLDDOWN PISTON CIRCUIT DE-ACTIVATION  
(Use with Change from SD or DD Fuel System to PT Fuel System)

2168	2	Spacer — Control Valve
------	---	------------------------

DISCONTINUED PARTS AVAILABLE FOR REPLACEMENT PURPOSES ONLY

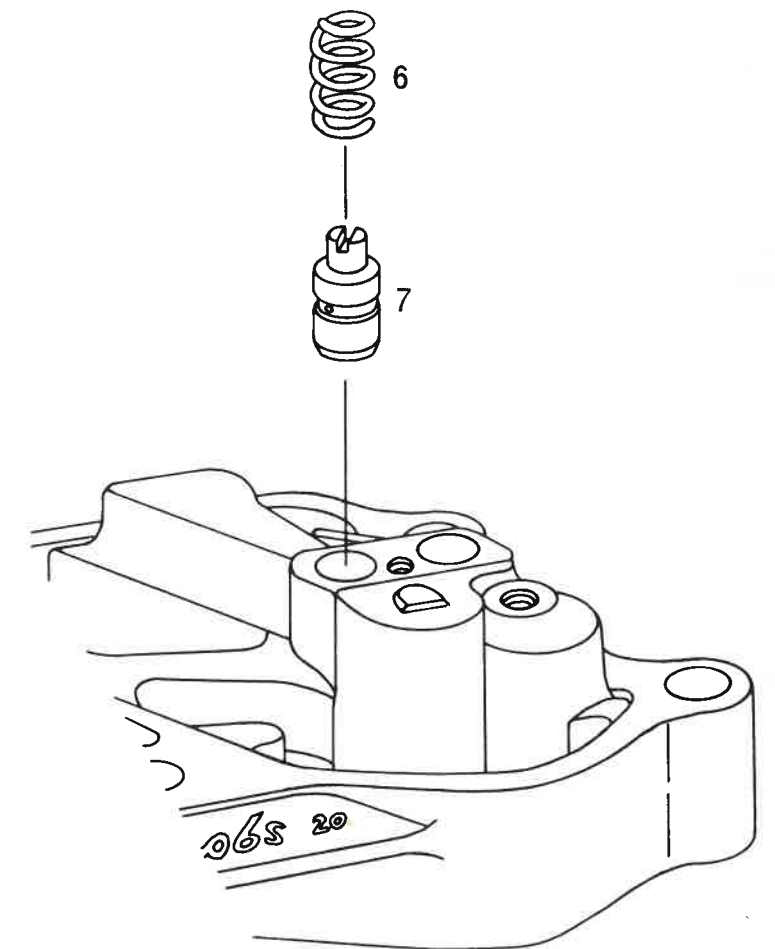
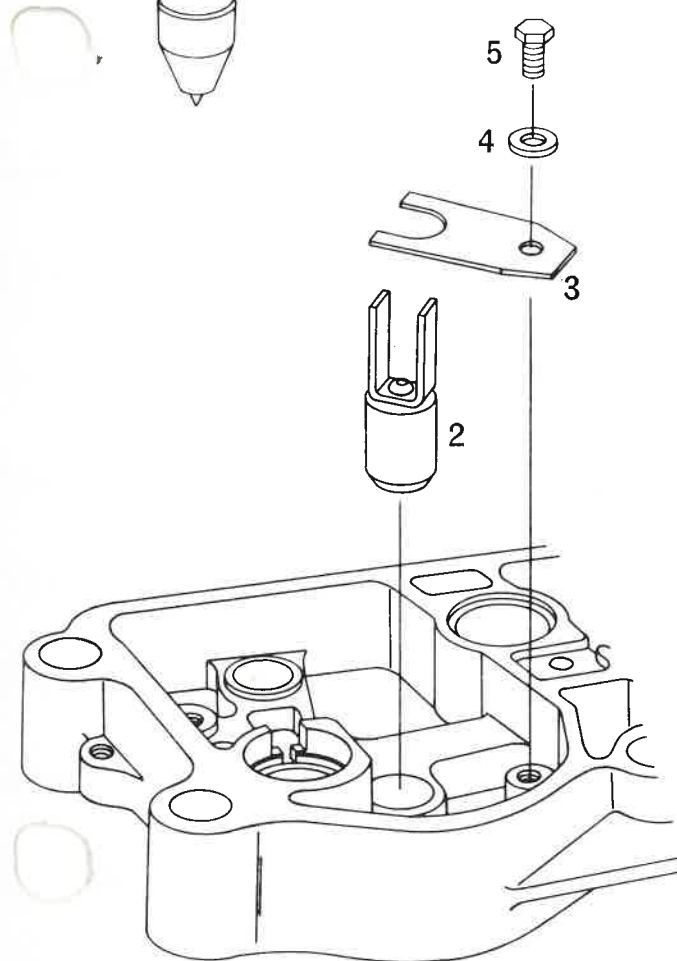


HOLDDOWN PISTON ASSEMBLY — For use with SD and DD Fuel Systems Only

Illus. No.	Part No.	Units Per Engine	Part Name
—	*1071	3	Model 20 Housing Assy with Holddown Circuits

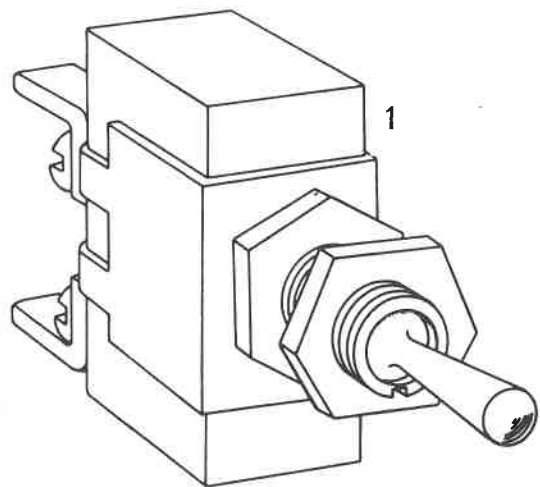
\*Contains all parts listed in 2640 Hsg. Assy. Page 3 plus parts listed below

Illus. No.	Part No.	No. Per Hsg. Assembly	Part Name
1	1044	2	Sleeve — Inj. Plun. Link Supp.
2	1473	2	Piston Assy — Holddown
3	1011	2	Spring — Holddown Piston
4	1030	2	Washer — Plain
5	1492	2	Capscrew
6	1012	2	Spring — Control Valve
7	1200	2	Spool Assy. — Control Valve



**DISCONTINUED PARTS AVAILABLE FOR REPLACEMENT PURPOSES ONLY**

**2101 CAB Control Group with 3 Position Dash Switch for use with SD and DD Fuel Systems Only**



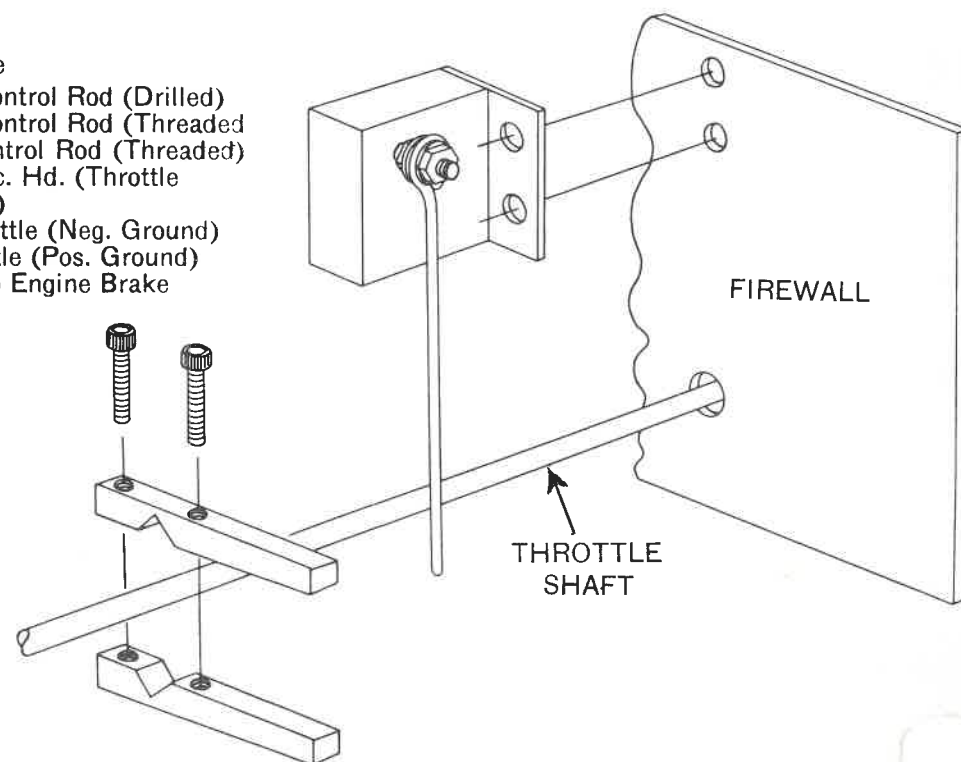
**2101 CAB CONTROL GROUP**

Illus. No.	Part No.	Units Per Grp.	Part Name
-	1101	1	Plate — Dashboard Control Sw.
1	1104	1	Switch — Toggle (Dashboard Control)
Not Illus.	1510	1	Harness (Dash Sw. to Tab)
Not Illus.	1512	1	Tab — Quick Disconnect

**2104 and 2105 Throttle Switch-Engine Control Groups for use with SD and DD Fuel Systems Only**

**ENGINE CONTROL GROUPS**

Illus. No.	Part No.	Units Per 2104 Grp.	Units Per 2105 Grp.	Part Name
1	1124	1	1	Clamp—Throttle Control Rod (Drilled)
2	1125	1	1	Clamp—Throttle Control Rod (Threaded)
2	1125	1	1	Clamp—Throttle Control Rod (Threaded)
3	1126	2	2	Capscrew—Hex Soc. Hd. (Throttle Cont. Rod Clamp)
4	*1560	-	1	Switch Assy.—Throttle (Neg. Ground)
4	*2113	1	-	Switch Assy.—Throttle (Pos. Ground)
Not Illus.	1955	1	1	Harness—Switch to Engine Brake



\* The 1560 and 2113 Throttle Switch Assy. Breakdown are the same as the 1495 Clutch Switch Assy. Breakdown (Page 10) except for the addition of one (1534) Diode. Reversing the Diode Position on the 1560 Assembly will give you the Positive Ground 2113 Assembly.