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MANDATORY

SERVICE BULLETIN

DATE: July 16, 2013

Service Bulletin No. 342G
(Supersedes Service Bulletin No. 342F)
Engineering Aspects are
FAA Approved

SUBJECT: Fuel Line (Stainless Steel Tube Assy.) and Support Clamp Inspection and Installation

MODELS AFFECTED: All fuel injected Lycoming engines indicated in fuel line and clamping diagrams.

TIME OF COMPLIANCE: Examine fuel lines every 100 hours, annual inspection, overhaul and any time fuel lines or clamps are serviced, removed, or replaced.

NOTE

Incomplete review of all the information in this document can cause errors. Read the entire Service Bulletin to make sure you have a complete understanding of the requirements.

This Service Bulletin contains procedures for installation, inspection, and corrective action of fuel lines on fuel injected engines. Each fuel line must be installed with support clamps to keep the fuel lines securely located in place to prevent tube damage due to vibration and rubbing against other parts of the engine. Vibration, rubbing, and/or kinks in the fuel lines can cause cracks in the fuel lines, loss of fuel, and a fire.

NOTE

Some Lycoming Engines Parts Catalogs could identify the fuel manifold as a fuel flow divider or other term.

NOTE

The routing of fuel lines and the types of fittings in the fuel manifold assembly (straight or angle) for various Lycoming engine models in this Service Bulletin are an approximation. An example of a fuel manifold assembly is shown in Diagram 2. Your configuration could be slightly different from the diagrams in this Service Bulletin. The correct clamps must be installed on fuel lines to make sure the fuel lines are securely located.

If by omission during field overhaul or repair, support clamps are not installed on the fuel lines, the fuel lines will be subjected to vibrational forces and/or rubbing against other engine parts, become damaged, eventually break and leak fuel on the engine.

NOTE

Fuel line diagrams in this Service Bulletin apply to those Lycoming engines that were certified by the FAA as per the Civil Air Regulations (CAR), that do not require a separate Maintenance Manual for each engine model. This Service Bulletin does not include those engines certified by the Federal Aviation Regulations (FARs) that do require a separate Maintenance Manual for each engine model. When Lycoming releases a Maintenance Manual for a FAR certified engine model in compliance with FAR 21.50, the information for this inspection will be included in the mandatory Airworthiness Limitations Section of the Maintenance Manual for the FAR certified engine.

To determine if your engine was certified by the CARs or FARs, copy the Type Certificate Data Sheet (TCDS) number from your engine's identification plate (the data plate). Using one of the internet search engines, ie. Google, enter FAA TCDS. One of the first results will be a direct link to the FAA's TCDS Library. Enter the TCDS number in the box provided and open the TCDS. On the TCDS next to the "Certification Basis" for your engine you will find CAR 13" or "FAR 33". Engines certified by CAR 13 will be in this Service Bulletin. Engines certified by FAR 33 will be in the Airworthiness Limitations Section of the Maintenance Manual for the FAR certified engine.

Fuel Line Inspection and Corrective Action

1. Identify the fuel line by number. Four-cylinder engines usually have four fuel lines. Six-cylinder engines have six fuel lines. Eight-cylinder engines have eight fuel lines.
2. Examine each fuel line and record findings per the Fuel Line Inspection and Installation Checklist.
3. After the inspection, refer to Table 1 for corrective action.
4. Record compliance with this Service Bulletin and any corrective action in the engine logbook.

Table 1
Corrective Action for Fuel Lines

Condition	Corrective Action
Leaky, cracked, brittle, worn, chafed, fuel line Bent (non-kinked) stainless steel fuel lines that have an inside radius less than 5/8 in. (15.88 mm)	Replace fuel line with a new fuel line.❖ Do NOT repair any fuel line that leaks or is cracked.
Damaged, pitted, nicked, dented, crimped or kinked fuel line	Replace fuel line with a new fuel line. ❖ Do NOT re-use any fuel line that has a dent. Dents can cause cracks to form.
No clamps installed on fuel line that had been in service	Replace the fuel line with a new fuel line and install clamps – refer to the section "Fuel Line Installation" in this Service Bulletin.
Loose clamps	Replace fuel line with a new fuel line. ❖ Tighten or replace clamps and make sure they securely attach the fuel line to the engine.
Deteriorated cushion on clamp, missing cushion, or cushion does not completely cover the fuel line diameter. (On engines that used metal clamps with no cushion, use the P/N LW-12598 fuel line sleeve at each of those clamping locations. The fuel line sleeve is not used with the cushioned clamps.)	Examine fuel lines in areas adjacent to the clamp. Replace any fuel line that has any condition identified above. Replace the clamp with a new clamp
Trouble with fuel injector clamp installation caused by obstructive baffling	Install the clamps to enable clearance.

❖ Refer to the latest revision of Service Instruction No. 1301 for superseded fuel line identification, bending requirements and replacement information.

Fuel Line Installation

1. Examine each fuel line for unacceptable conditions as per the "Fuel Line Inspection and Corrective Action" section in this Service Bulletin.
2. The diagrams in this Service Bulletin show a suggested routing and configuration arrangement for fuel lines on Lycoming engine models. These fuel line configuration diagrams are conceptual and are approximated. Fuel system routing could have slightly different configurations.
3. Clamps (preferably with cushions) must be installed on all fuel lines. If a fuel line had been in service and clamps were not installed, these fuel lines must be replaced with new fuel lines.
   a. Do NOT use plastic tie straps in place of cushioned clamps.
   b. On engines that used metal clamps with no cushion, use the P/N LW-12598 fuel line sleeve at each of those clamping locations. The fuel line sleeve is not used with the cushioned clamps.
   c. If the clamps are to have a cushion, make sure the cushion is not missing and is intact, and completely covers the fuel line diameter.
   d. Make sure the clamps are tightly attached to support the fuel line and to prevent movement from vibration or motion frequencies.
4. Make sure that the fuel lines are securely connected (to prevent line movement during flight) with the necessary clamps and hardware.
5. Fuel lines must be held in place securely using clamps with cushions. The clamps must be approximately 8 in. (20 cm) apart.

WARNING

DO NOT ROUTE FUEL LINES CLOSE TO HEAT SOURCES. HEAT CAN DAMAGE THE FUEL LINE AND CAUSE A FUEL LEAK WHICH COULD LEAD TO CATASTROPHIC ENGINE FAILURE.

6. Do not let fuel lines touch the engine or airframe baffle hardware. There must be a minimum clearance of 3/16 in. (4.76 mm) between a fuel line and any engine or airframe surface.

WARNING

DO NOT RETURN THE ENGINE TO SERVICE UNLESS THE ENGINE IS OPERATING CORRECTLY AND DOES NOT HAVE ANY LEAKS.

7. Look for any fuel leaks. Identify and correct the cause of any fuel leak.
8. Record compliance with this Service Bulletin and any corrective action in the engine logbook.

Fuel Line Inspection and Installation Checklist			
Engine Model:	**Date of Inspection:**		**Inspector:**
Inspection Item	**Fuel Line No.**	**Findings**	**Corrective Action Taken**
Examine fuel line for damage, leaks, dents, pits, nicks, kinks, stains caused by fuel leaks, cracks, brittleness, or chafing	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
Clamps (with cushions) attached to fuel lines. Fuel lines must be held in place securely with clamps in position approximately 8 in. (20 cm) apart. If no clamps are attached the fuel line that was in service, the fuel line must be replaced. Examine the cushion on clamps for deterioration. If cushions are deteriorated or missing, replace the clamp. Make sure the clamps are tightly secured and attached. If the clamps are loose, the fuel line must be replaced. NOTE Plastic tie straps are not acceptable substitutes for clamps.	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		

LEGEND FOR PARTS ON DIAGRAMS 1 TO 39		
(Fuel Lines, Clamps, Brackets, Attaching Hardware as shown in the following Engine Diagrams)		
CALL OUT	PART NUMBER	PART NAME
1	76356	TUBE ASSY., Manifold to nozzle fuel line
2	76357	TUBE ASSY., Manifold to nozzle fuel line
3	76358	TUBE ASSY., Manifold to nozzle fuel line
4	76359	TUBE ASSY., Manifold to nozzle fuel line
5	76360	TUBE ASSY., Manifold to nozzle fuel line
6	76361	TUBE ASSY., Manifold to nozzle fuel line
7	76362	TUBE ASSY., Manifold to nozzle fuel line
8	LW-12098-0-100	TUBE ASSY., Manifold to nozzle fuel line
9	LW-12098-0-140	TUBE ASSY., Manifold to nozzle fuel line
10	LW-12098-0-150	TUBE ASSY., Manifold to nozzle fuel line
11	LW-12098-0-160	TUBE ASSY., Manifold to nozzle fuel line
12	LW-12098-0-170	TUBE ASSY., Manifold to nozzle fuel line
13	LW-12098-0-180	TUBE ASSY., Manifold to nozzle fuel line
14	LW-12098-0-190	TUBE ASSY., Manifold to nozzle fuel line
15	LW-12098-0-210**	TUBE ASSY., Manifold to nozzle fuel line
16	LW-12098-0-210	TUBE ASSY., Manifold to nozzle fuel line
17	LW-12098-0-220	TUBE ASSY., Manifold to nozzle fuel line
18	LW-12098-0-240**	TUBE ASSY., Manifold to nozzle fuel line
19	LW-12098-0-240	TUBE ASSY., Manifold to nozzle fuel line
20	LW-12098-0-260	TUBE ASSY., Manifold to nozzle fuel line
21	LW-12098-0-270	TUBE ASSY., Manifold to nozzle fuel line
22	LW-12098-0-280	TUBE ASSY., Manifold to nozzle fuel line
23	LW-12098-0-300	TUBE ASSY., Manifold to nozzle fuel line
24	LW-12098-0-310	TUBE ASSY., Manifold to nozzle fuel line
25	LW-12098-0-320	TUBE ASSY., Manifold to nozzle fuel line
26	LW-12098-0-340	TUBE ASSY., Manifold to nozzle fuel line
27	LW-12098-0-350	TUBE ASSY., Manifold to nozzle fuel line
28	LW-12098-0-390	TUBE ASSY., Manifold to nozzle fuel line
29	LW-12098-0-412	TUBE ASSY., Manifold to nozzle fuel line
30	LW-13995-0-202	TUBE ASSY., Manifold to nozzle fuel line
31	LW-13995-0-224	TUBE ASSY., Manifold to nozzle fuel line
32	LW-13995-0-271	TUBE ASSY., Manifold to nozzle fuel line
33	LW-13995-0-284	TUBE ASSY., Manifold to nozzle fuel line
34	AN735-26	CLAMP
35	LW-16266-10-13*	CLAMP

LEGEND FOR PARTS ON DIAGRAMS 1 TO 39		
(Fuel Lines, Clamps, Brackets, Attaching Hardware as shown in the following Engine Diagrams)		
CALL OUT	PART NUMBER	PART NAME
36	LW-16266-10-25*	CLAMP
37	LW-16266-10-38*	CLAMP
38	LW-16266-10-44*	CLAMP
39	LW-16266-10-75*	CLAMP
40	LW-16266-25-13*	CLAMP
41	LW-16266-25-25*	CLAMP
42	LW-16266-25-38*	CLAMP
43	LW-16266-25-44*	CLAMP
44	LW-16266-25-50*	CLAMP
45	LW-16266-25-63*	CLAMP
46	LW-16266-25-75*	CLAMP
47	71824	CLAMP
48	LW-16266-25-13**	CLAMP
49	74733	CLIP
50	STD-692	SCREW, No. 10-32 x 1/2 long
51	STD-860	SCREW, No. 10-32 x 5/8 long
52	STD-921	SCREW, No. 10-32 x 7/8 long
53	STD-1925	SCREW, 1/4-20 x 5/8 long
54	STD-425	WASHER, No. 10 plain
55	STD-28	WASHER, No. 10 plain
56	STD-670	NUT, No. 10-32 self-locking
57	72815	BRACKET, 90°, Twist
58	73136	BRACKET, 90°
59	73152	BRACKET, Support clamp
60	75837	BRACKET, Fuel line support
61	76735	BRACKET, 90°
62	LW-14875	BRACKET, 90°
63	75414	BRACKET, Fuel manifold
64	76868	BRACKET, Support clamp
65	74278	BRACKET ASSY., Fuel line support
66	73626 (NLA)	BRACKET, Extension
67	73318	BRACKET, Extension
68	LW-25-0.81	BOLT, 1/4-20 x 13/16 long
69	STD-8	WASHER, 1/4 plain

LEGEND FOR PARTS ON DIAGRAMS 1 TO 39		
(Fuel Lines, Clamps, Brackets, Attaching Hardware as shown in the following Engine Diagrams)		
CALL OUT	PART NUMBER	PART NAME
70	STD-160	WASHER, 1/4 lock
71	STD-1411	NUT, 1/4-20 plain
72	AN735-32 NLA	CLAMP
73	AN735-36 NLA	CLAMP
74	STD-969	SCREW, No. 10-32 x 1/2 long
75	STD-251	WASHER, No. 10 lock
76	73966	SPACER
77	STD-1916	SCREW, 1/4-20 x 1-1/8 long
78	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long
79	STD-1874	SCREW, 1/4-20 x 13/16 long
80	AN4-13A NLA	BOLT
81	LW-12598	SLEEVE
82	LW-25-0.50	BOLT, 1/4-20 x 1/2 long
83	LW-16266-10-63	CLAMP, 5/8 I.D.

* See page 8 for part number designation.

** P/N 73843 is superseded by P/N LW-16266-25-13, P/N LW-12098-0-200 superseded by P/N LW-12098-0-210, P/N LW-12098-0-230 superseded by P/N LW-12098-0-240.

NOTE

Aircraft quality Phillips head screws of proper length can be used in place of specified Lycoming screws.

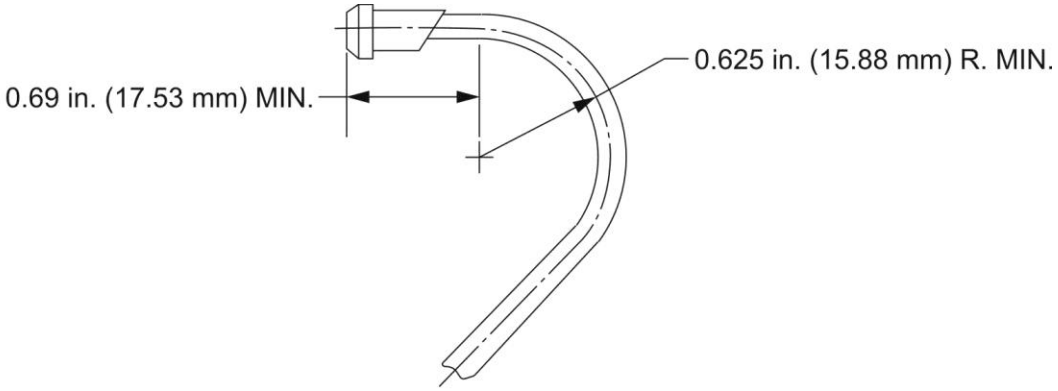
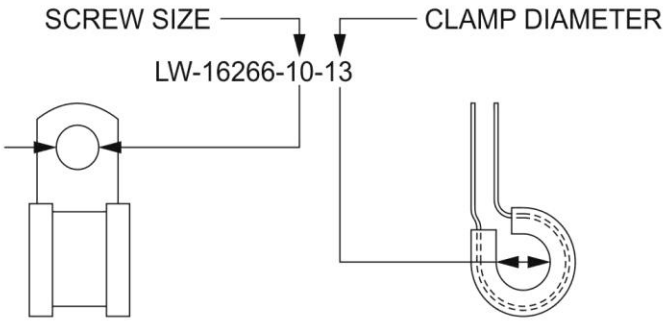


Figure 1. Fuel Line Showing Minimum Dimension for Bending

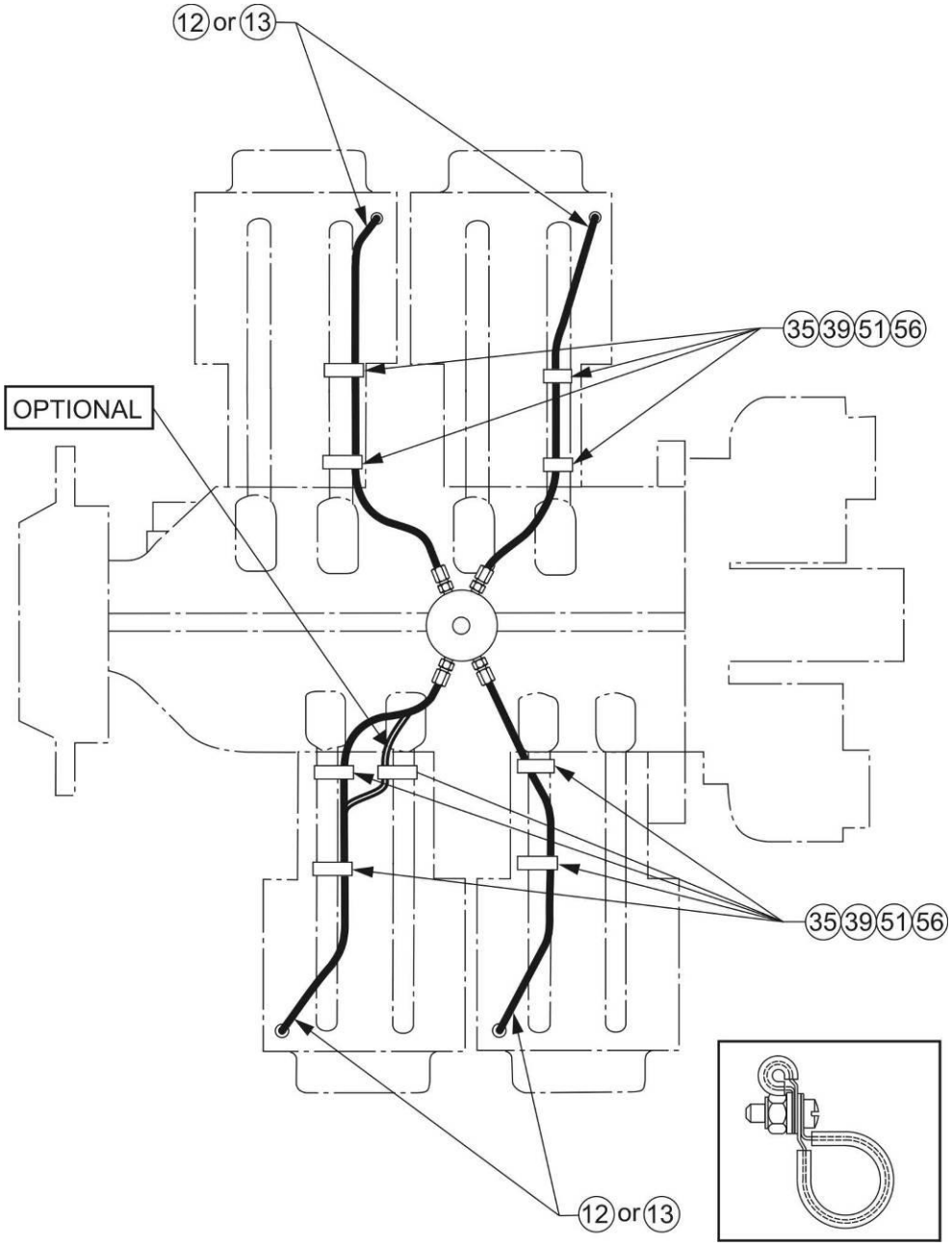
PLEASE Note … When installing clamps, it does not matter whether the clamp is installed to the right or left of the shroud tube, only that it is clamped at that location and there is 3/16 inch (4.76 mm) clearance between the line and any engine surface.

CLAMP P/N DESIGNATION



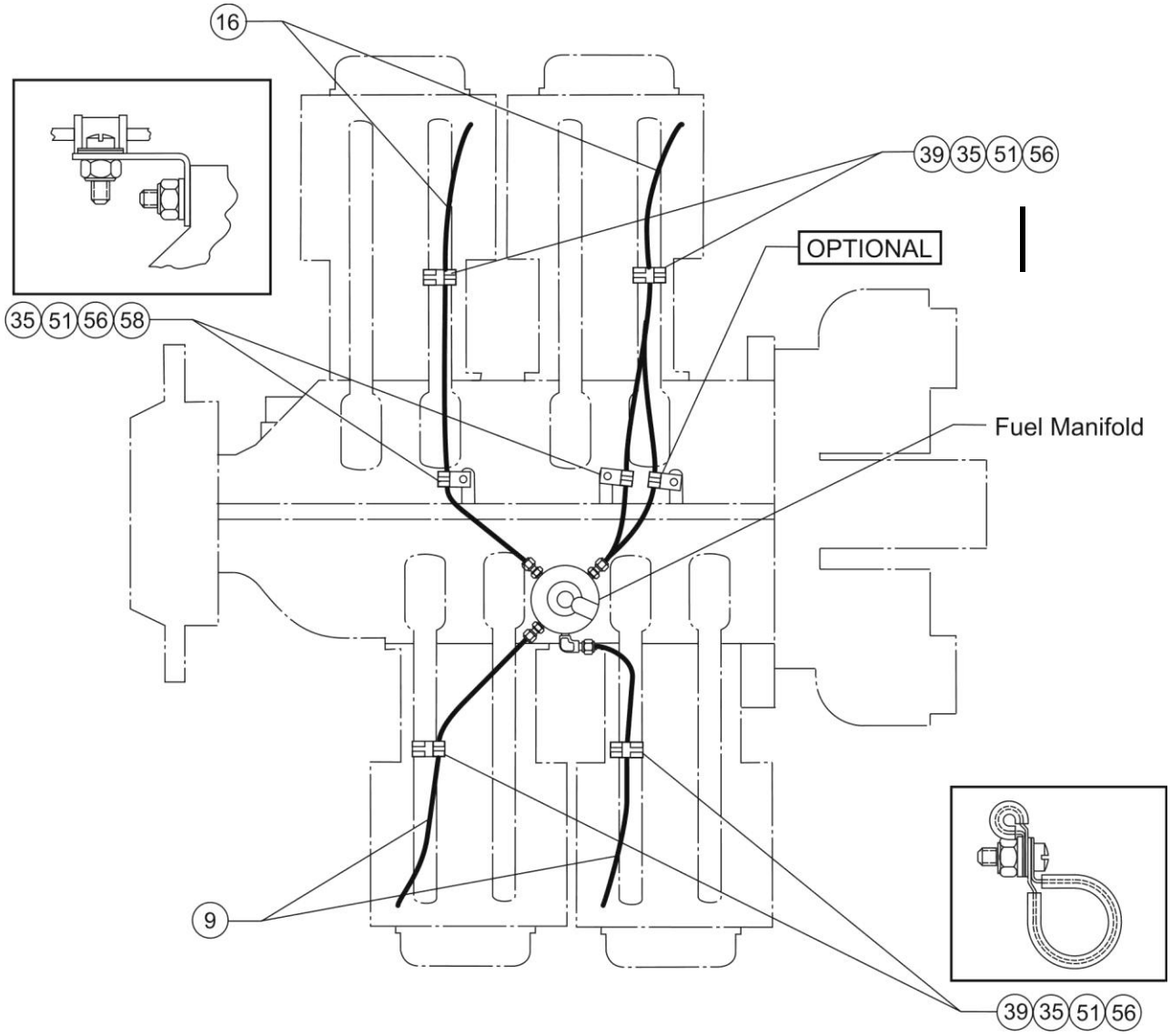
10 = #10 SCREW	-13 (.125) -25 (.250) -38 (.375) -44 (.438) -75 (.750)
25 = 1/4” SCREW	-13 (.125) -25 (.250) -38 (.375) -44 (.438) -50 (.500) -63 (.625) -75 (.750)

Diagram No. 1 -- IO-320-B1A
IO-360-B1B, B1F, B2F, B2F6, B4A, F1A, L2A
AEIO-360-B1G6, B1H, B4A, H1A, H1B



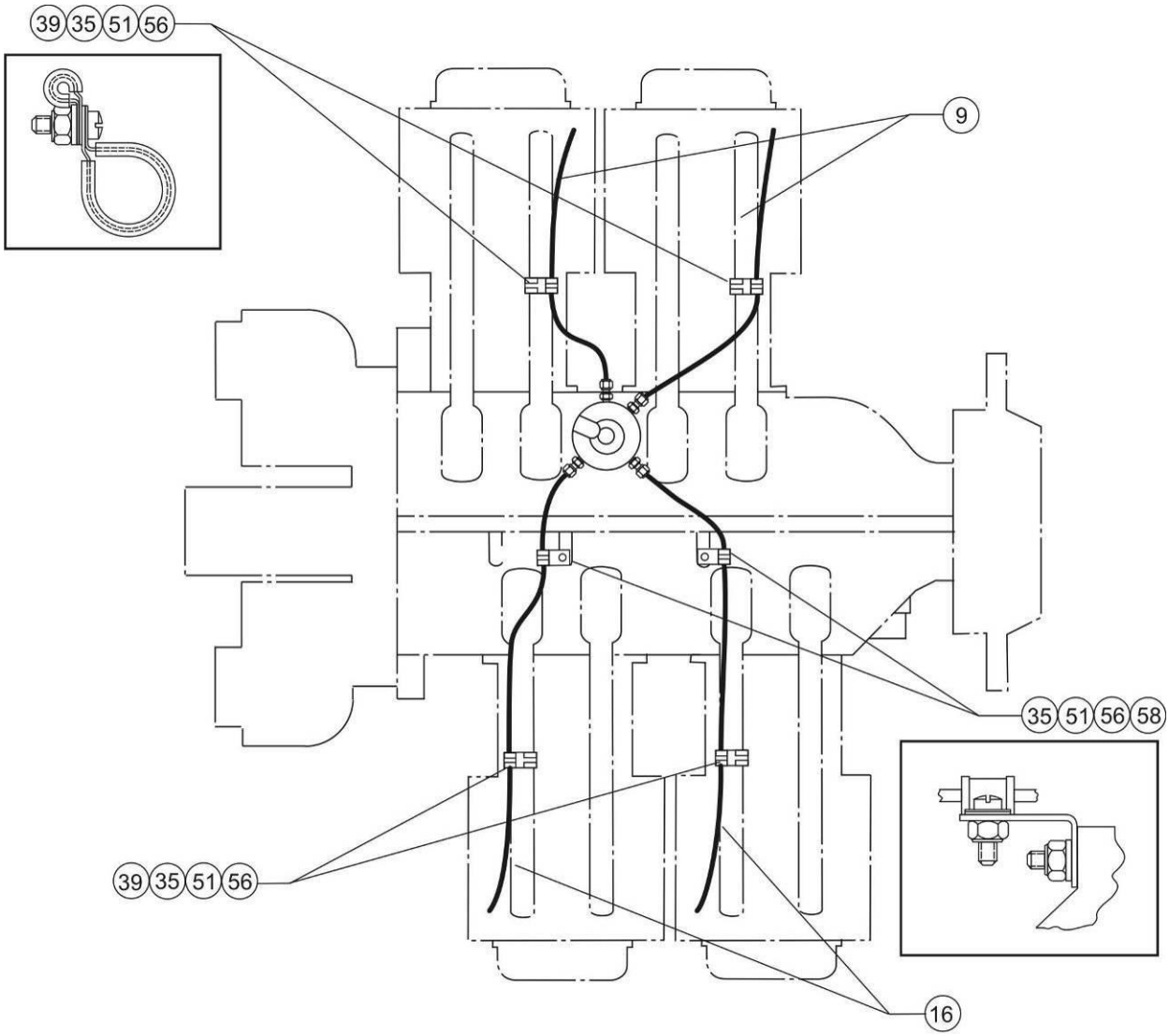
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	9 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 2 -- IO-320-B1A, B1C, C1A, D1A, D1B, E1A, E1B, E2A, E2B
LIO-320-B1A, C1A
AEIO-320-D1B, D2B, E1B, E2B
IO-360-B1G6, C1D6, C1F, C1G6
HIO-360-C1A, C1B, E1AD, E1BD, F1AD
TIO-360-A1B



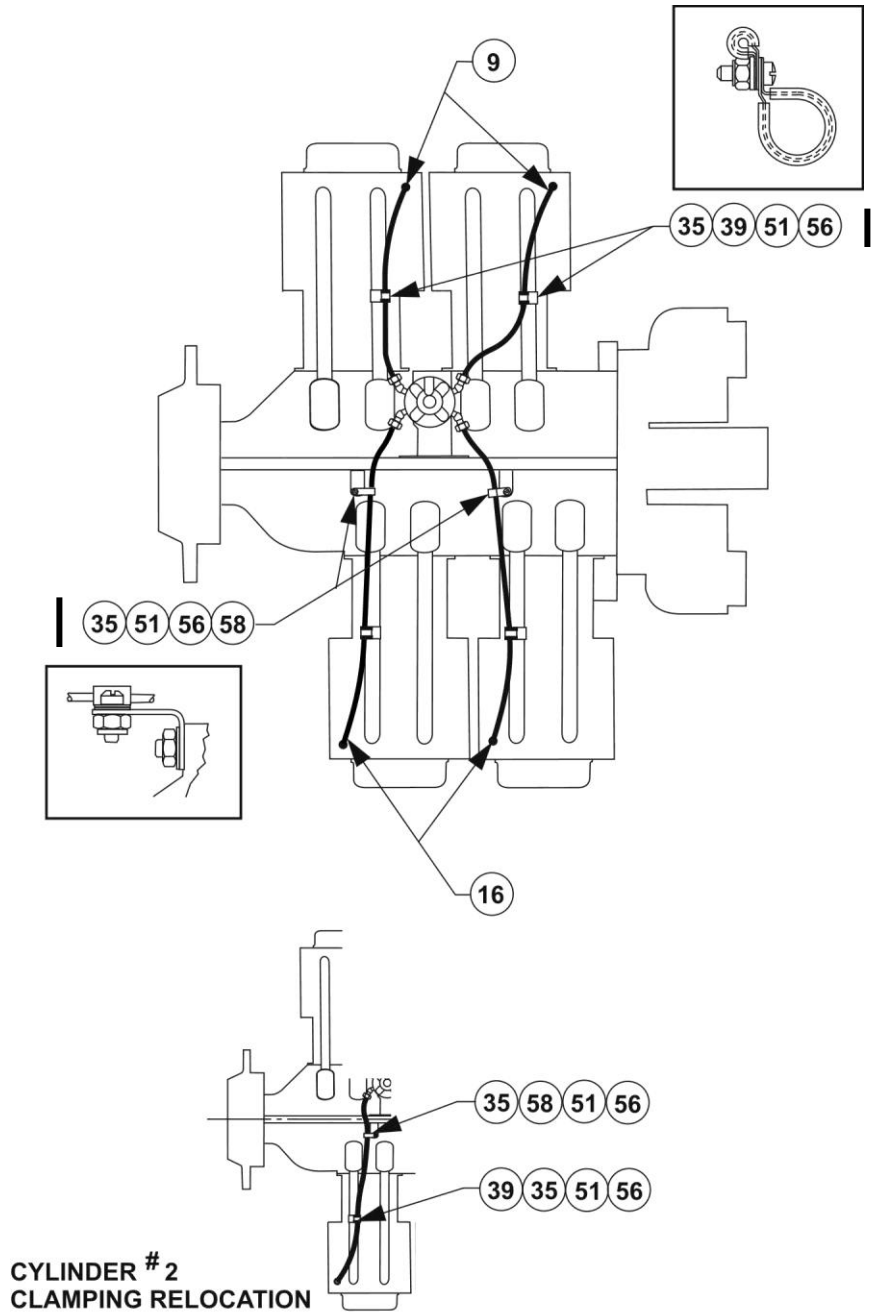
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	10 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 3 -- IO-360-C1C, C1C6, C1E6
LIO-360-C1E6



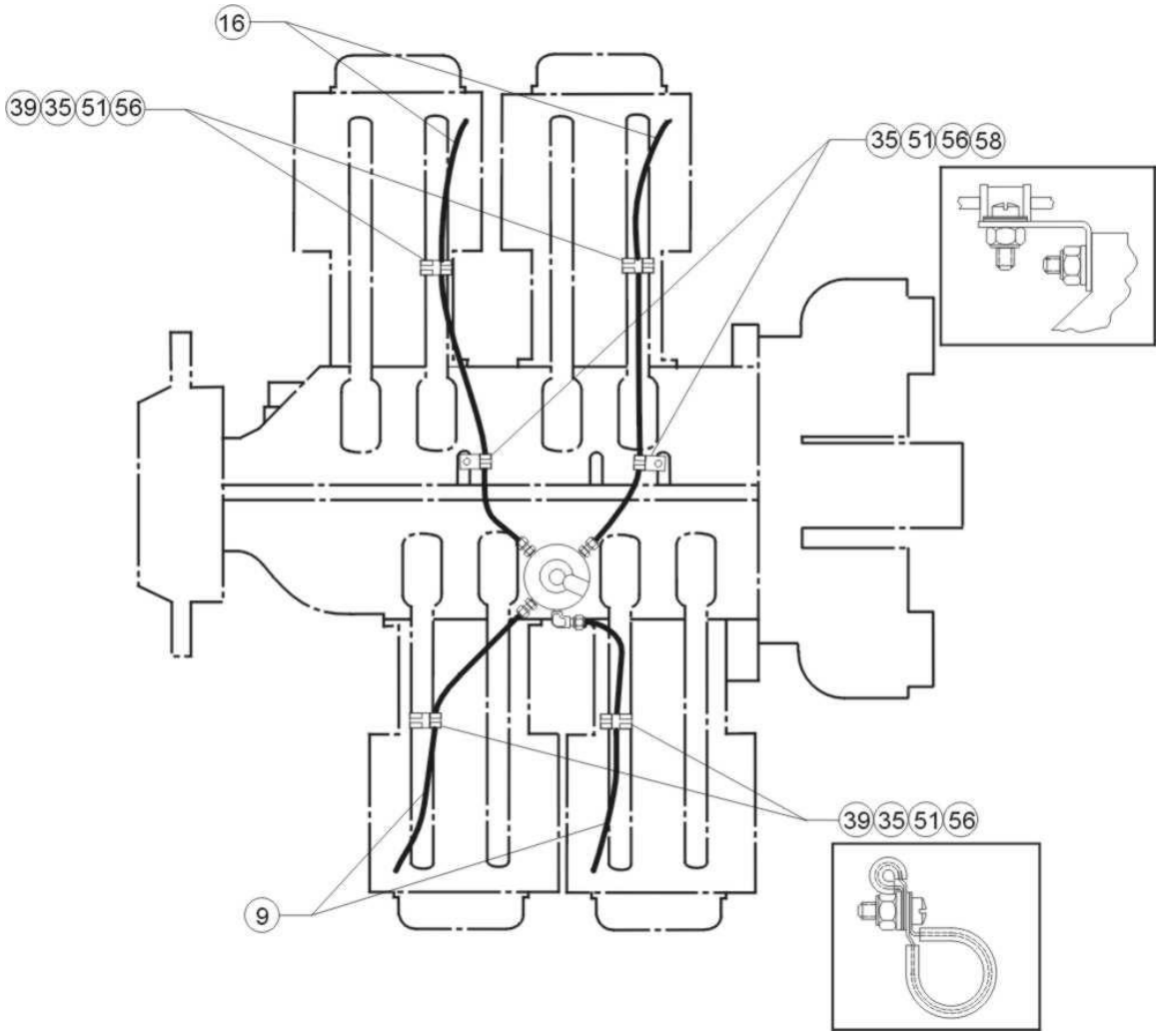
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	11 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 4 -- IO-360-A1A, A1B, A1B6, A1B6D, A1C, A1D, A1D6, A2A, A2B, A3B6, A3B6D, B1D, B1F, B2F, C1A, C1B, C1D6, J1A6D, M1B
HIO-360-C1A, C1B
AEIO-360-A1A, A1B, A1B6, A1D, A1E, A1E6, B1F, B2F



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	12 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 5 -- IO-360-B1E



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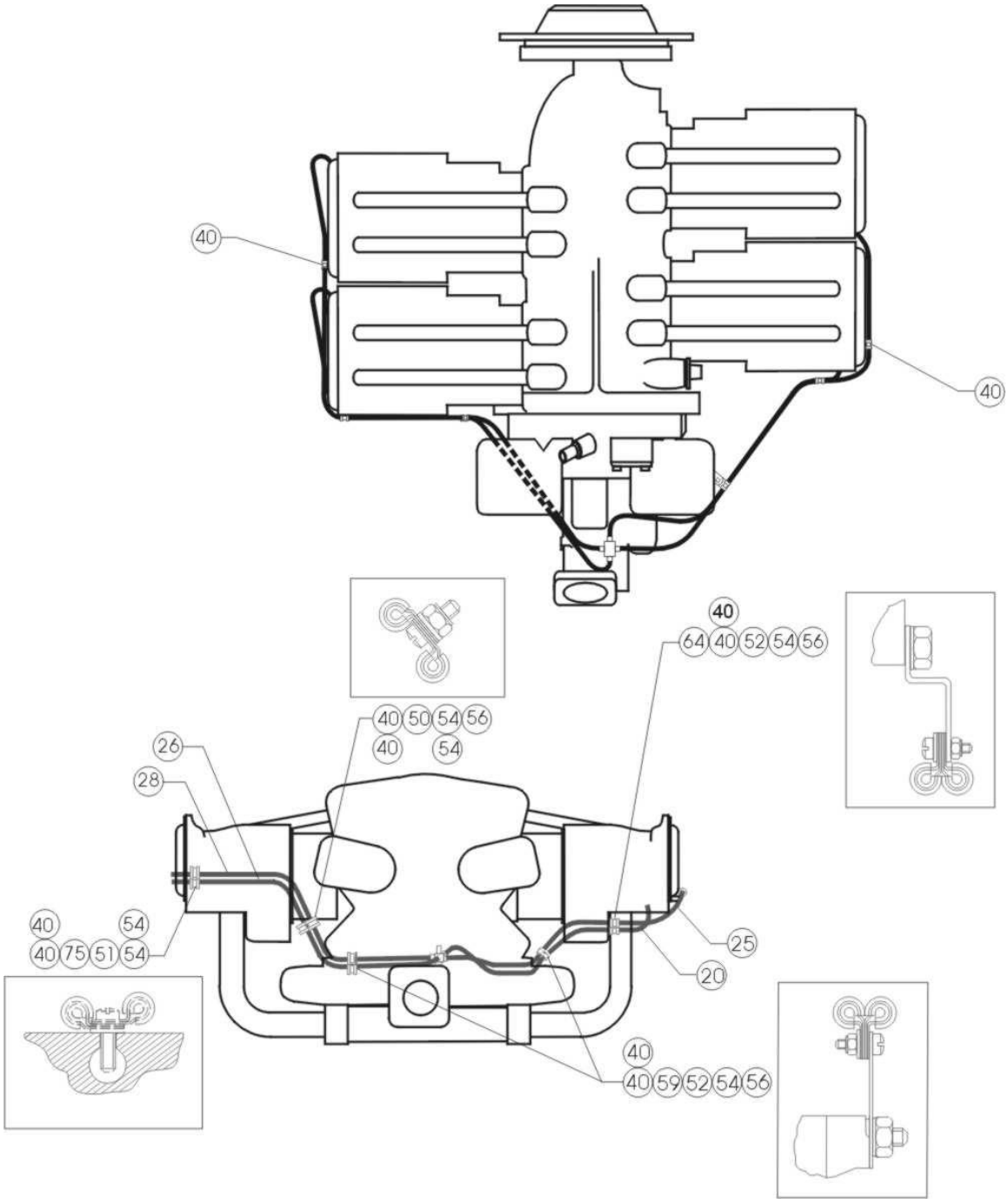
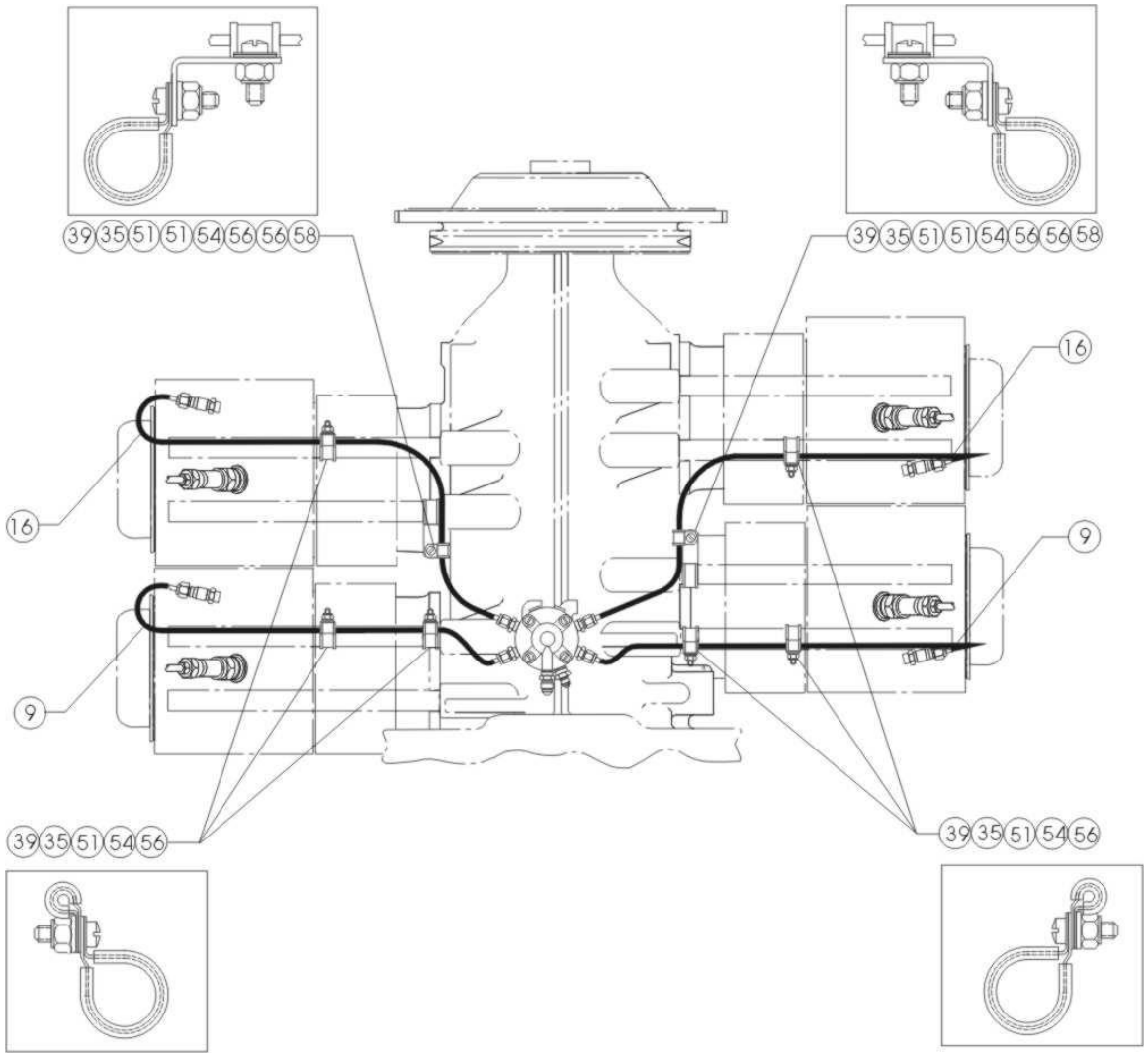
MO	DAY	YEAR	MO	DAY	YEAR	13 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 6 -- HIO-360-A1A



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	14 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 7 -- HIO-360-A1B



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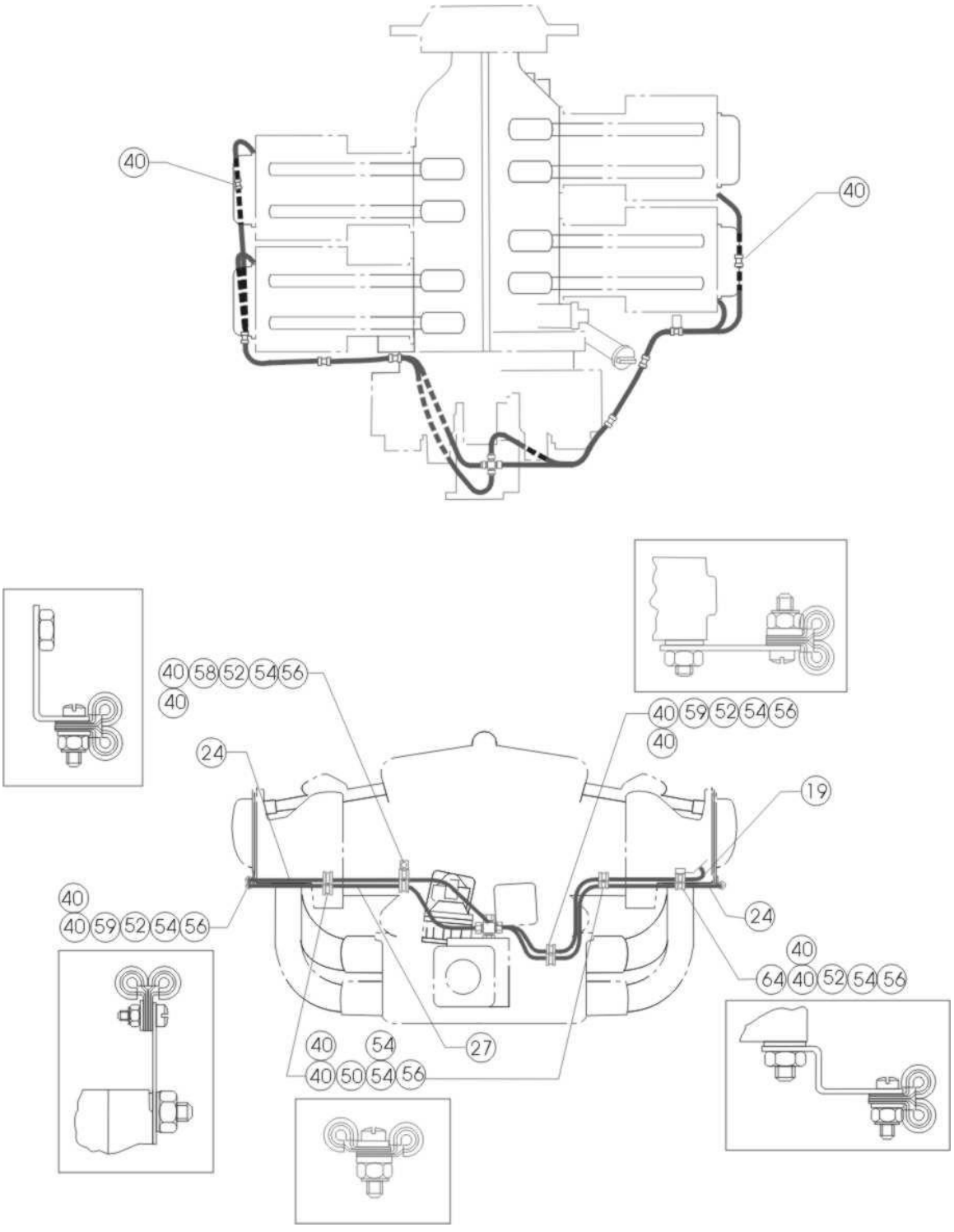
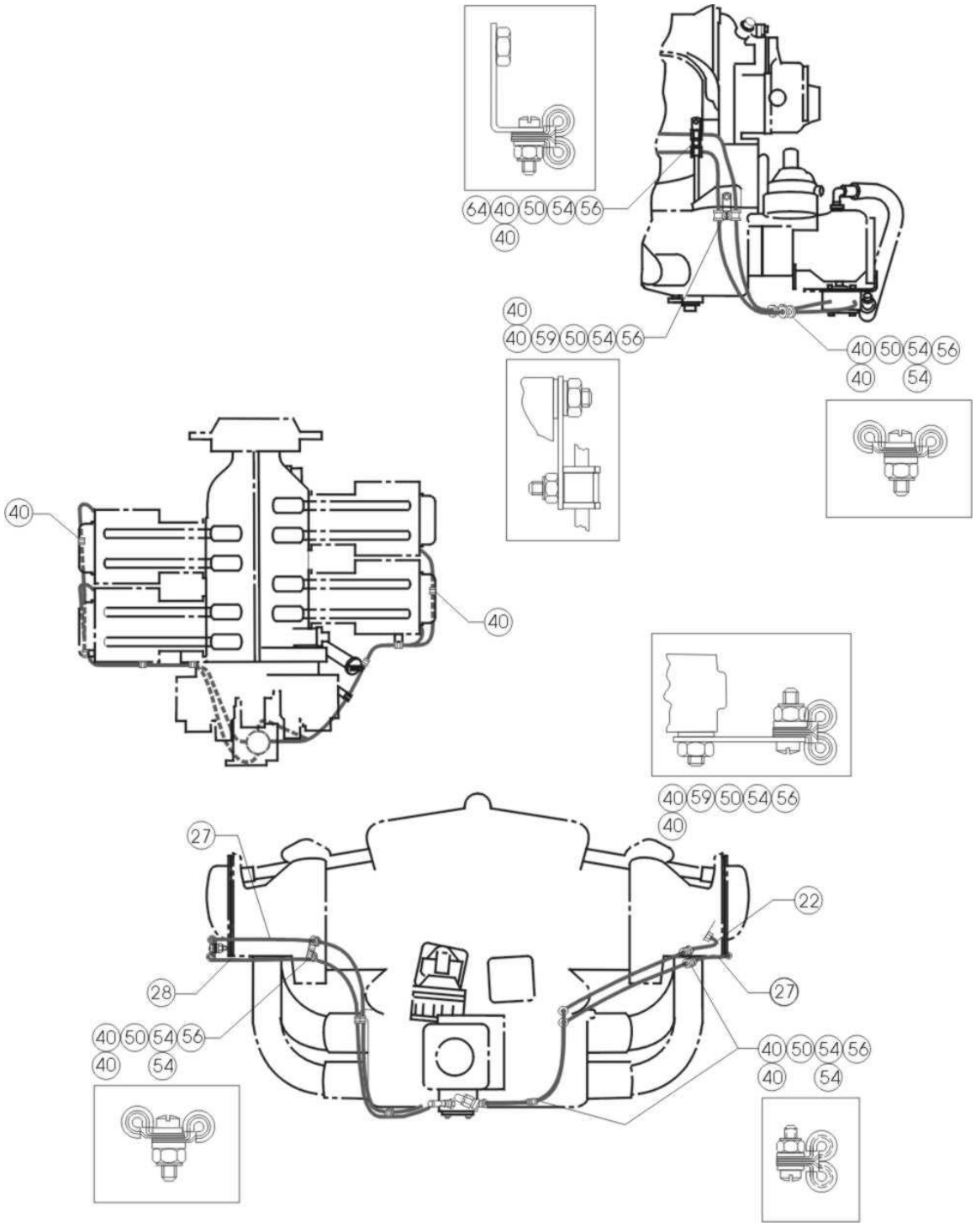
MO	DAY	YEAR	MO	DAY	YEAR	15 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 8 -- HIO-360-B1A (View 1 of 3) Rosette Installation



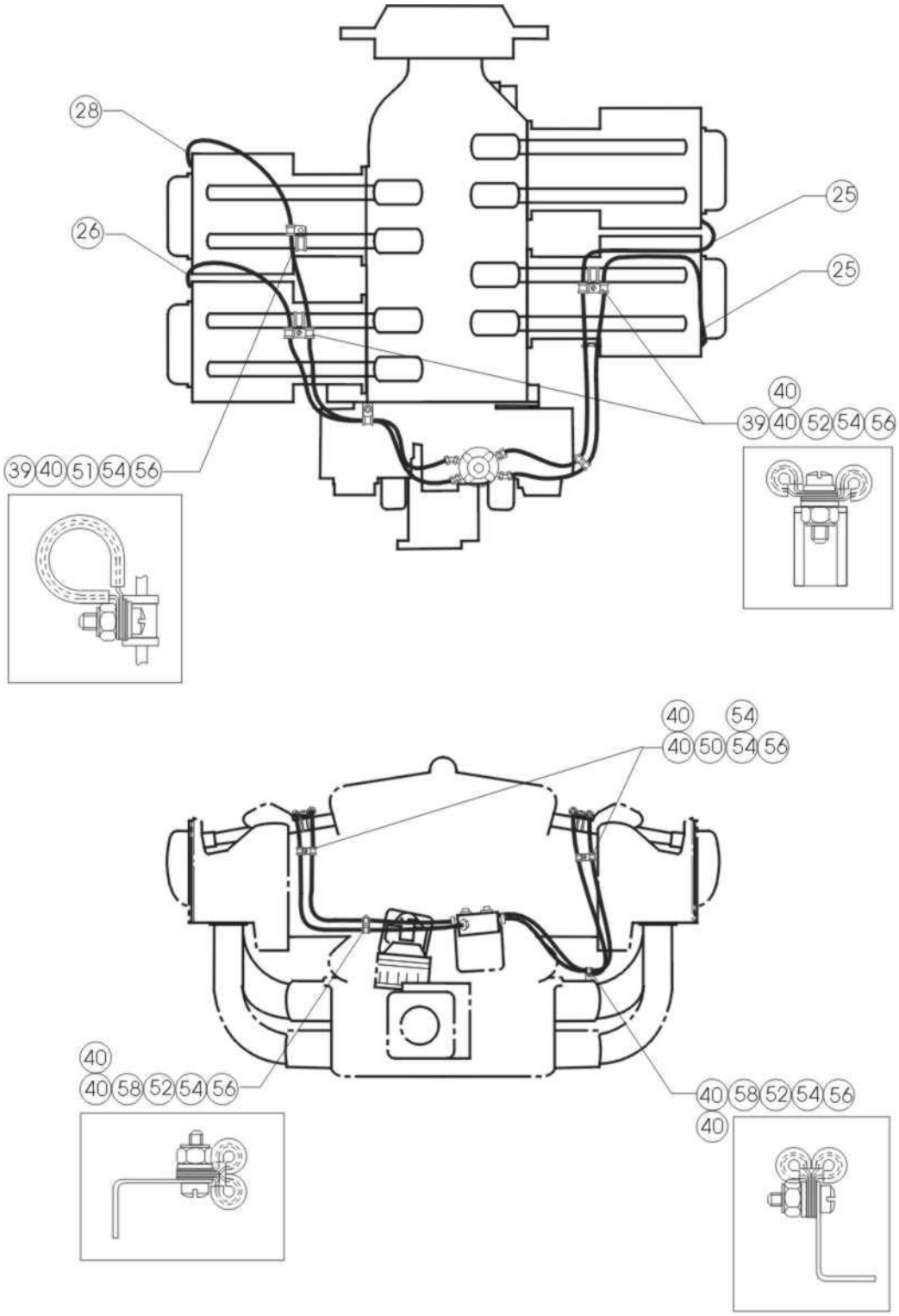
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	16 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 9 -- HIO-360-B1A (View 2 of 3) LW-12155 Manifold Assy., Fuel



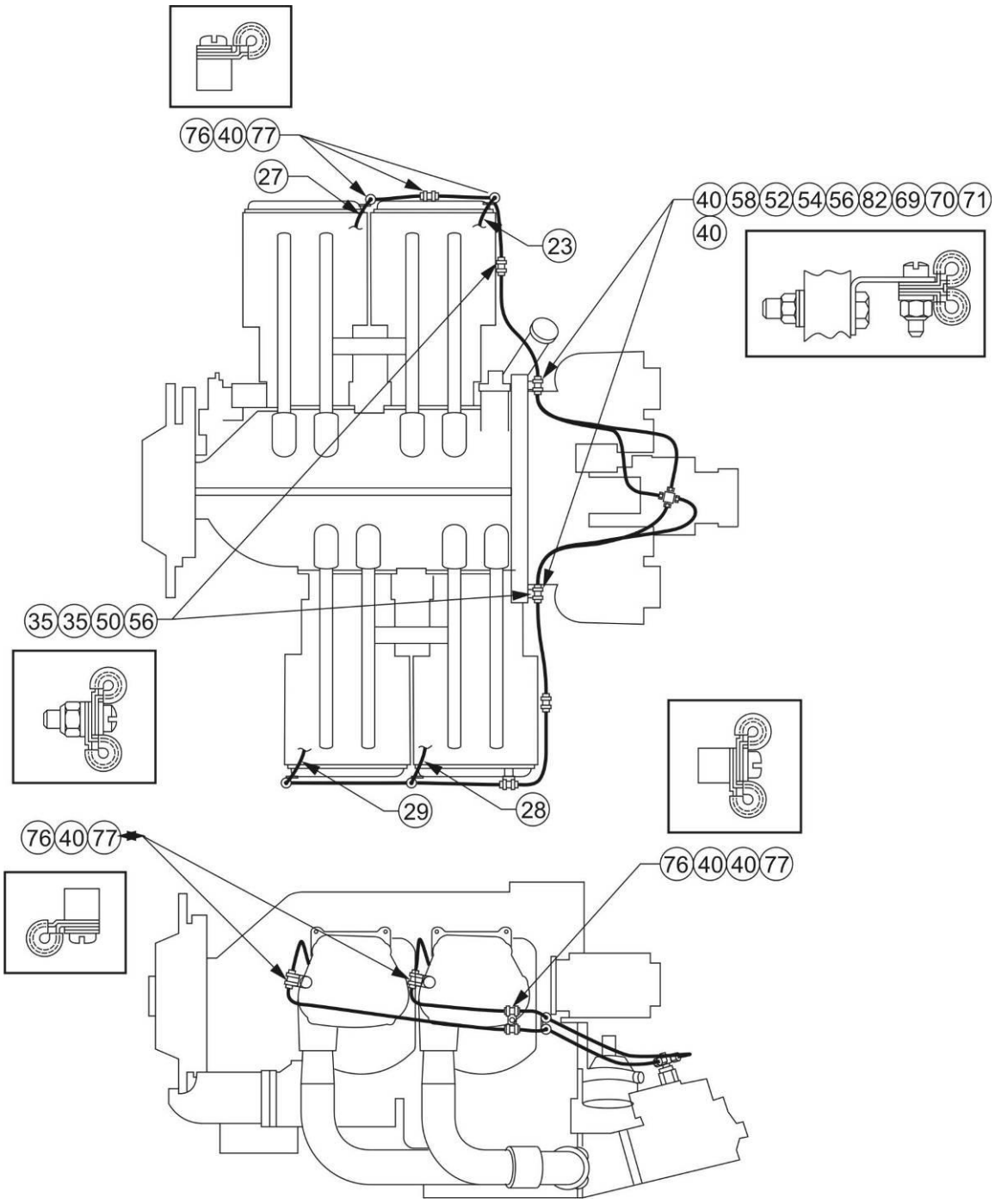
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	17 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 10 -- HIO-360-B1A (View 3 of 3) 75282 Manifold Assy., Fuel



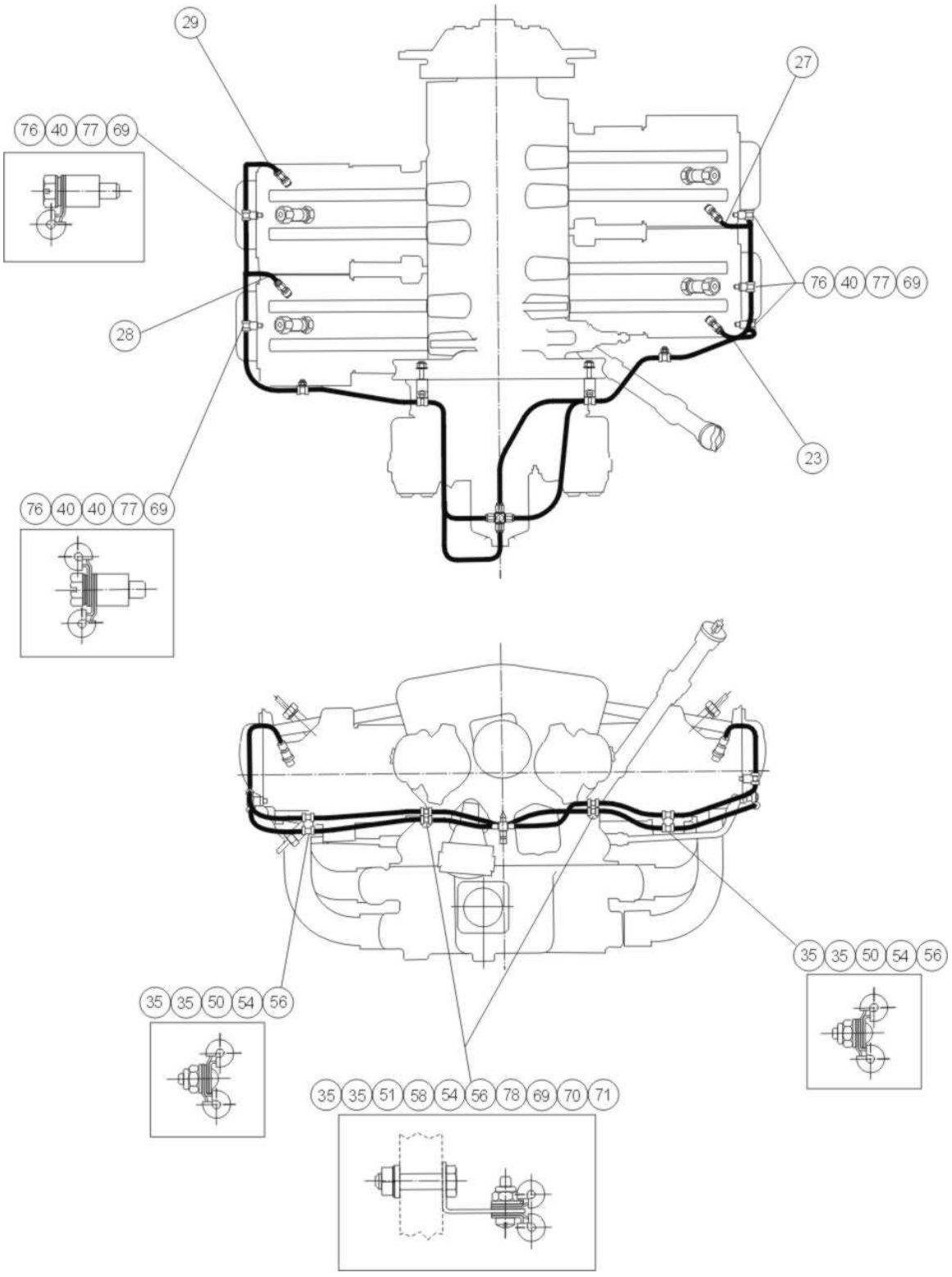
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	18 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 11 -HIO-360-D1A



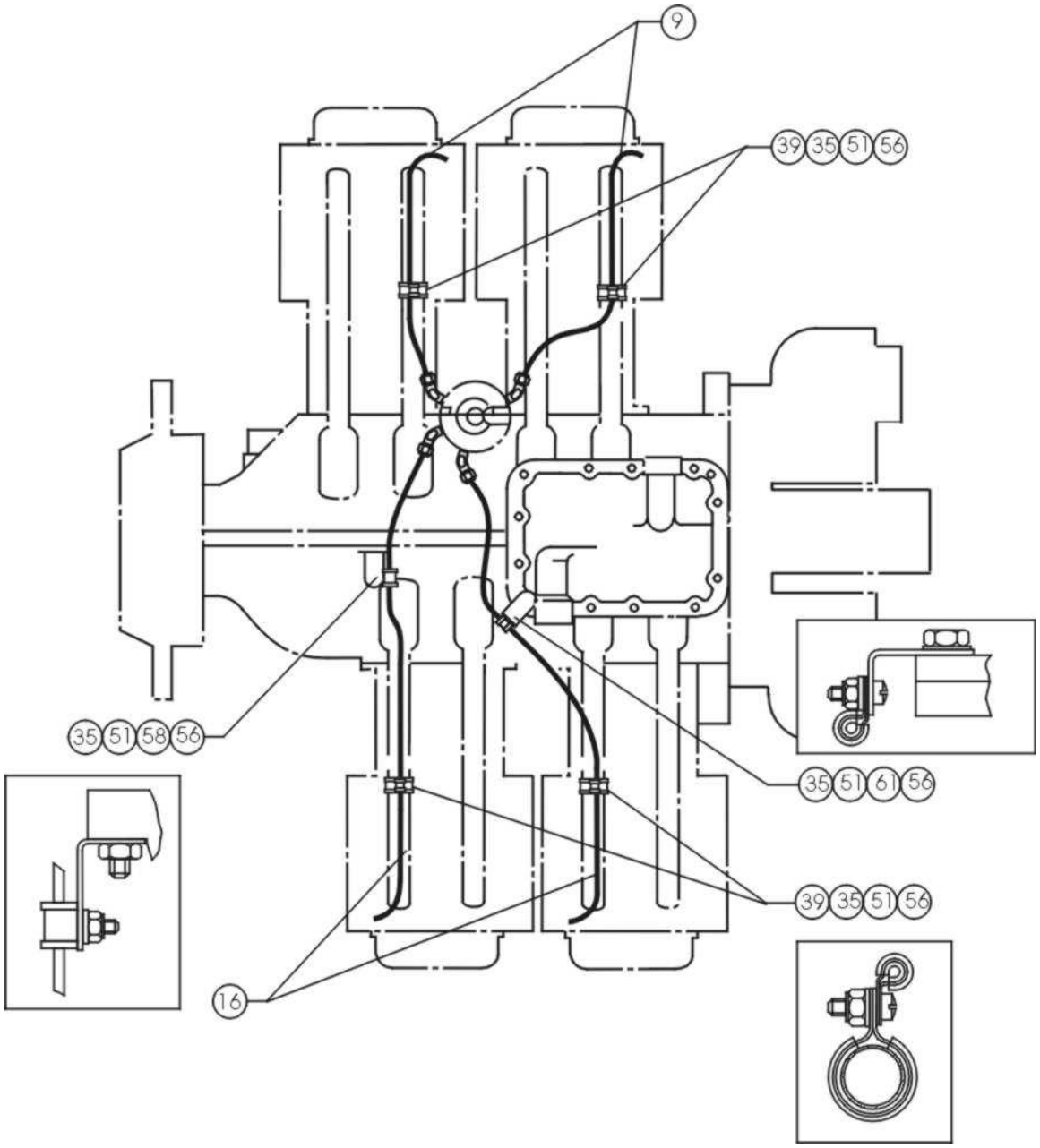
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	19 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 12 -- HIO-360-G1A



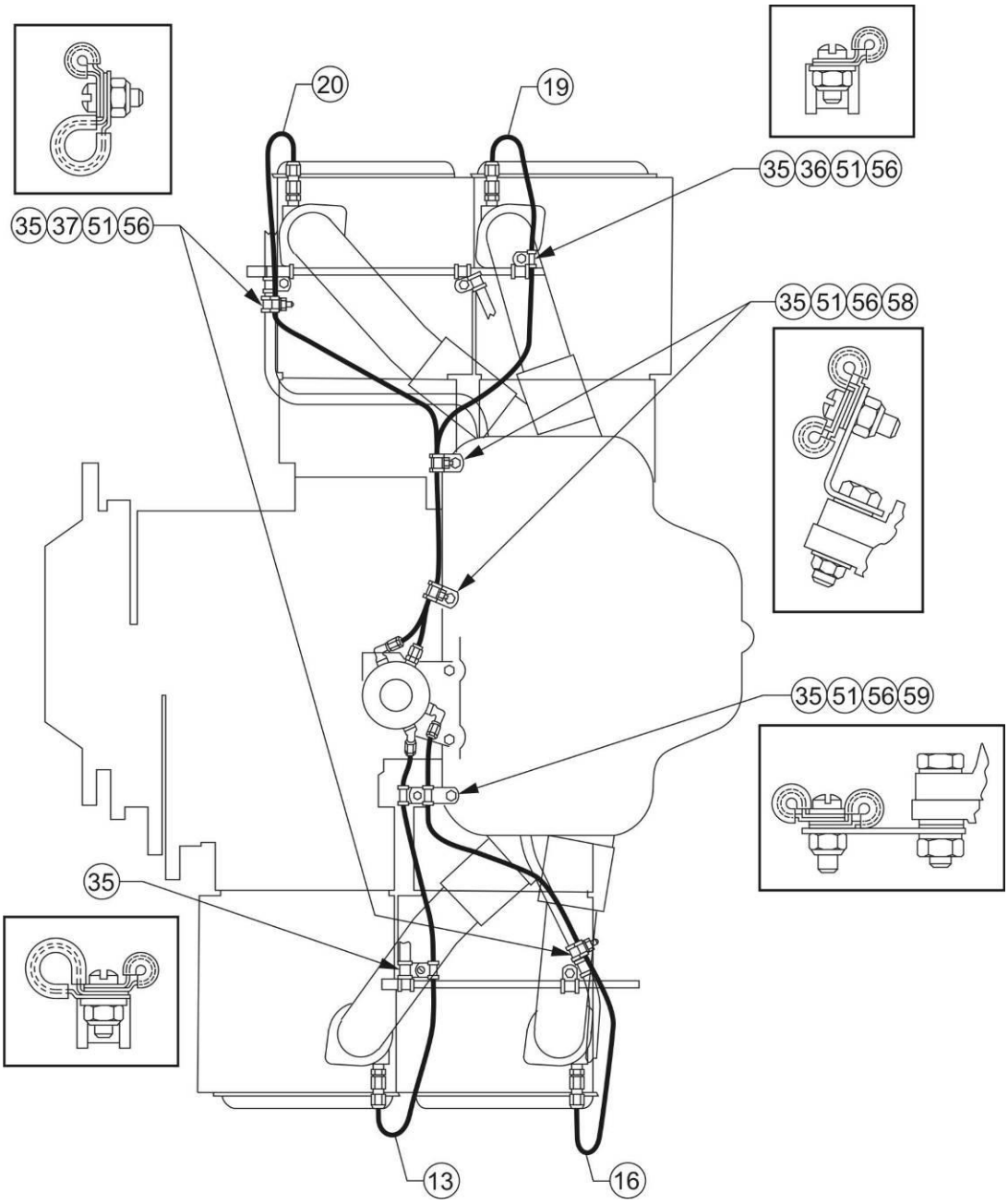
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	20 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 13 -- AIO-320-A1B, B1B, C1B
AIO-360-A1A, A1B, B1B



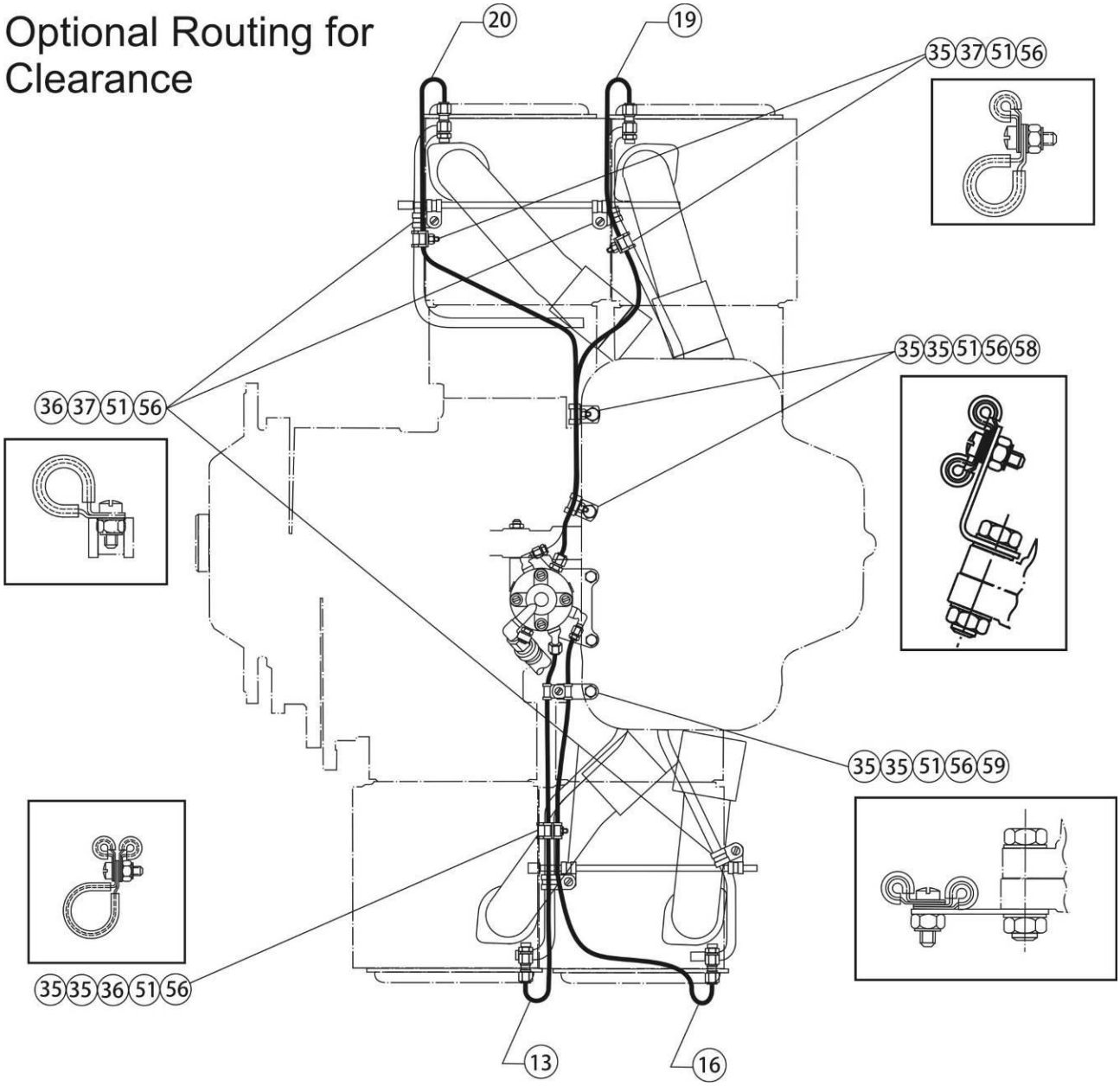
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	21 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 14 -- TIO-360-C1A6D (View 1 of 3) Also see Diagram No. 15 and 16 for additional routing configurations.



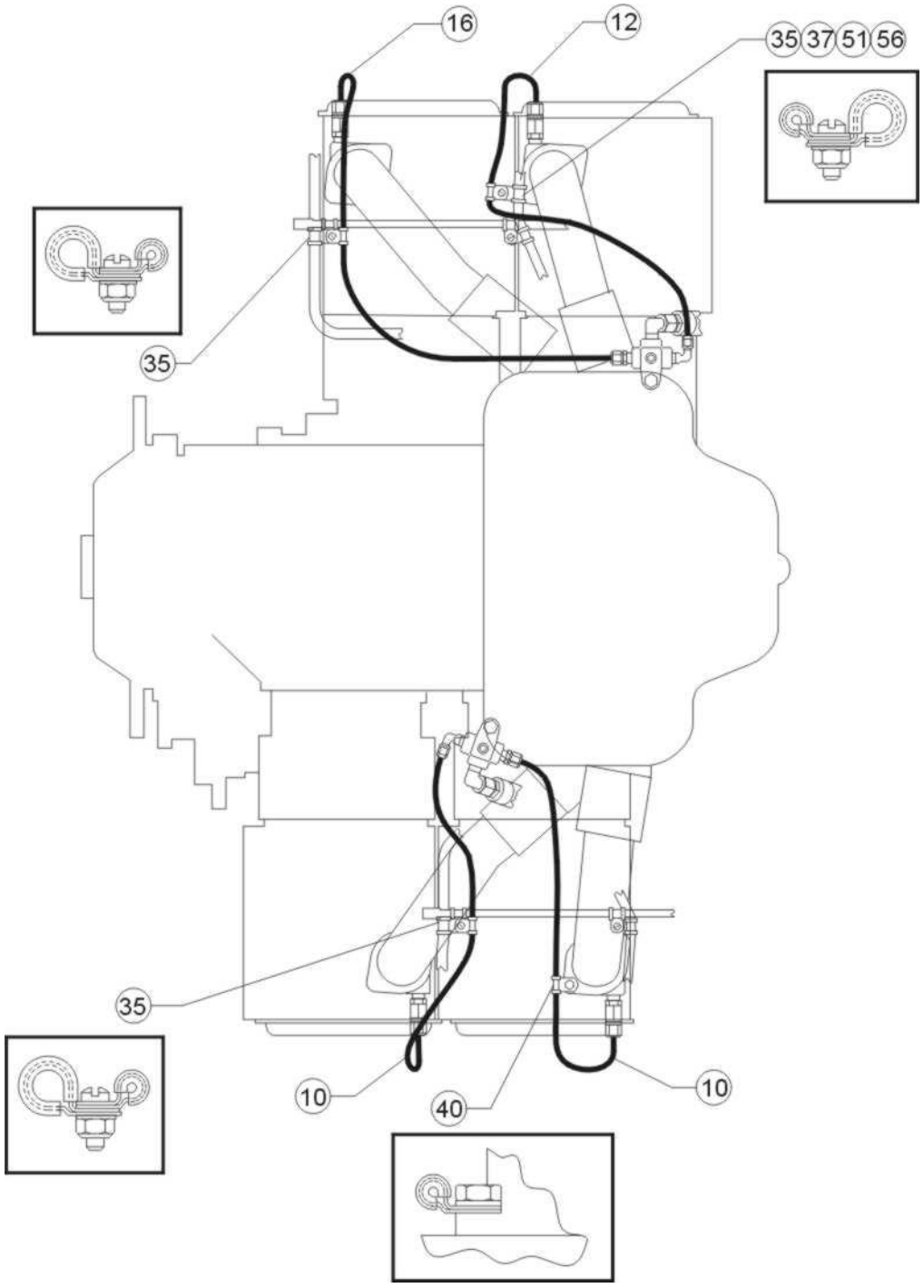
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	22 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 15 -- TIO-360-C1A6D (View 2 of 3)



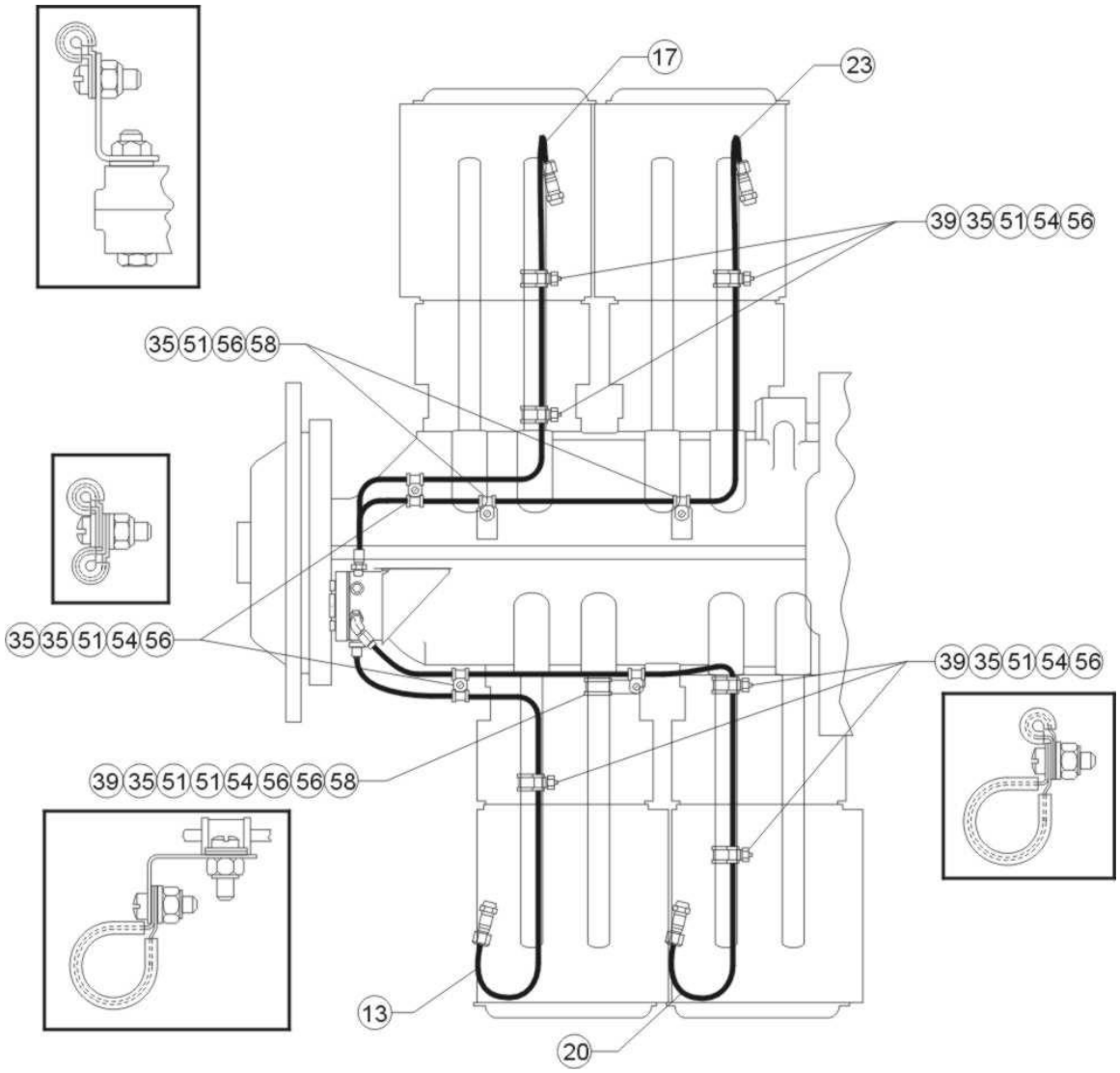
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	23 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 16 -- TIO-360-C1A6D (View 3 of 3)



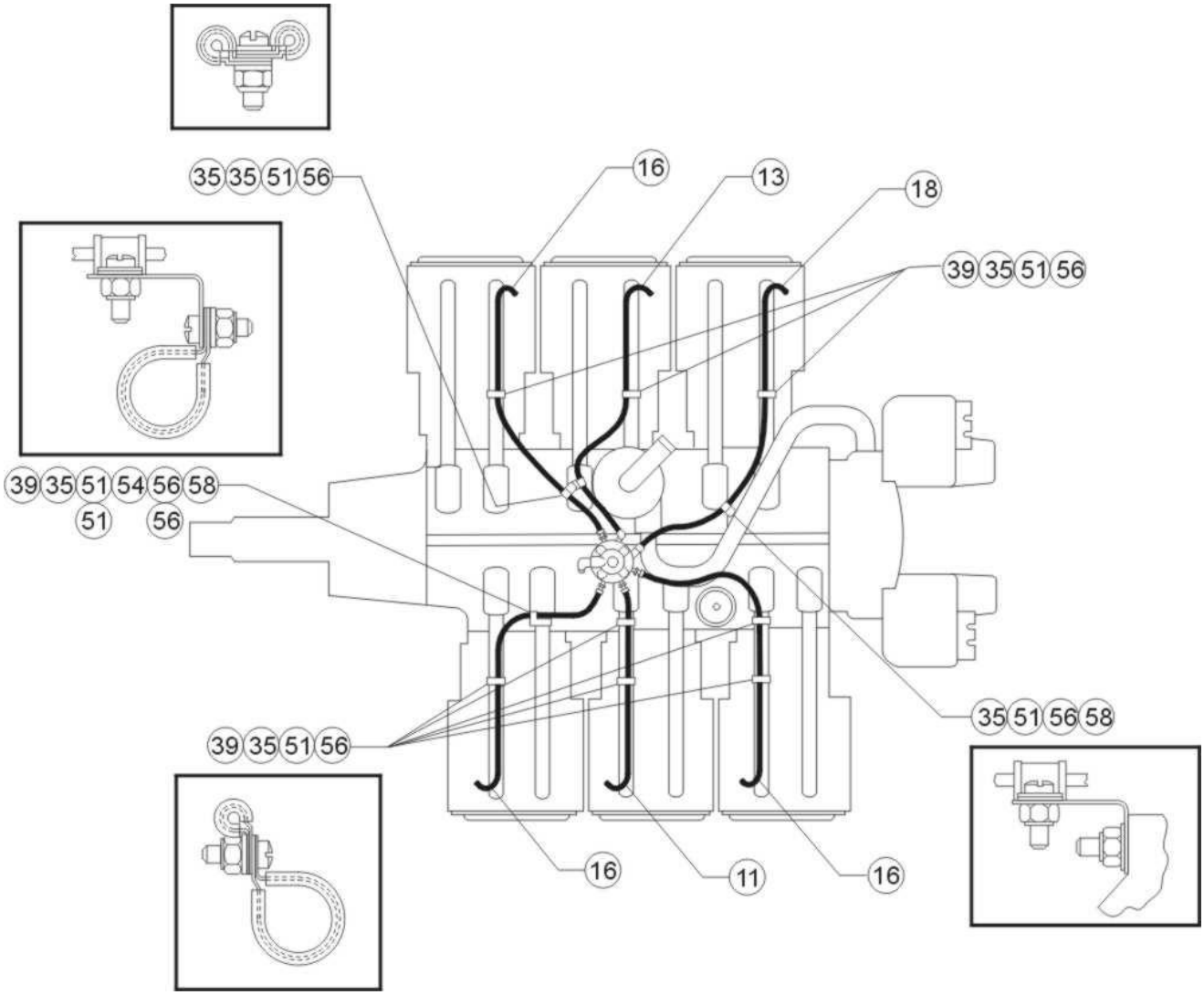
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	24 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 17 -- IVO-360-A1A



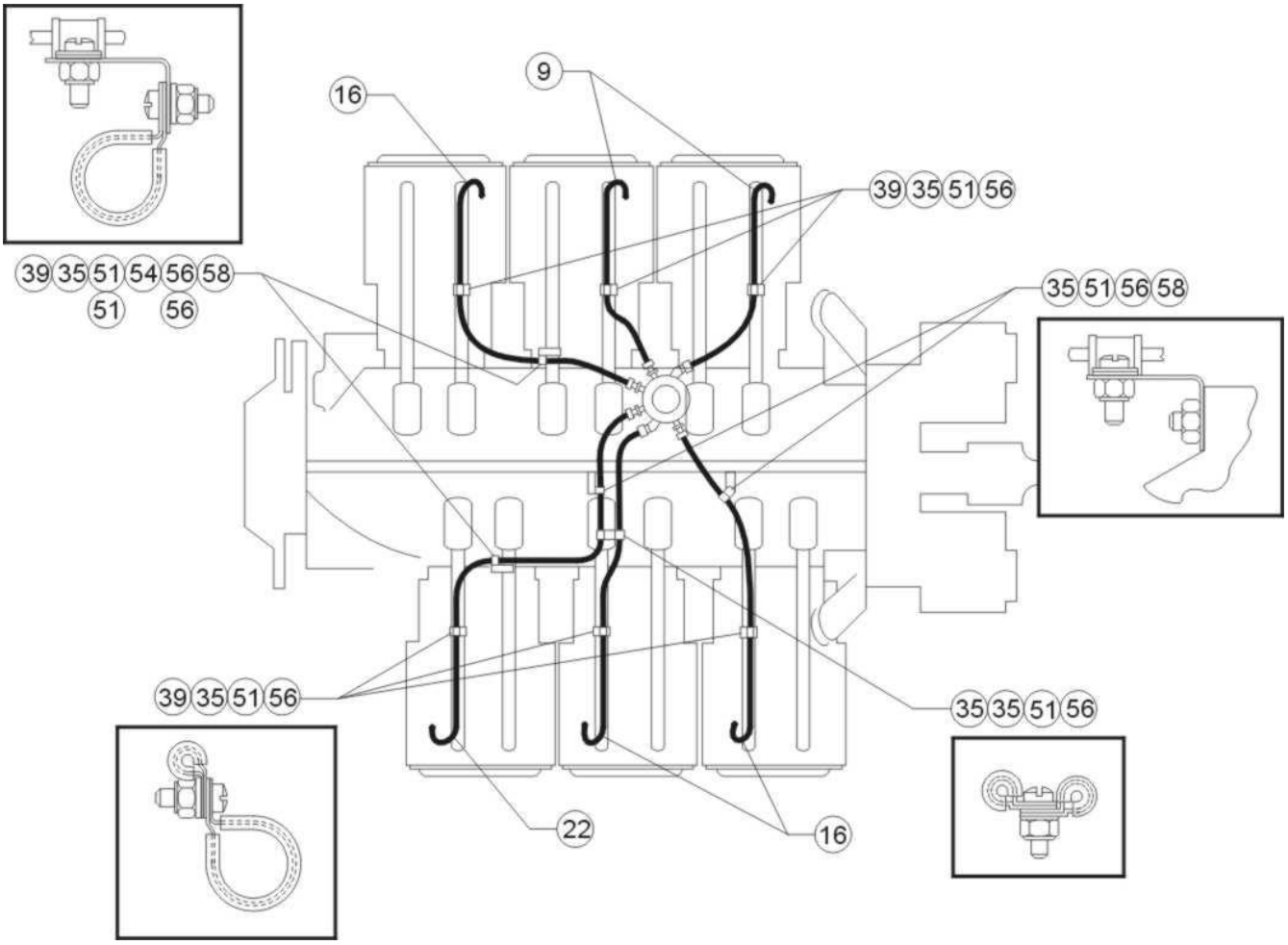
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	25 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 18 -- IGO-480-A1B6



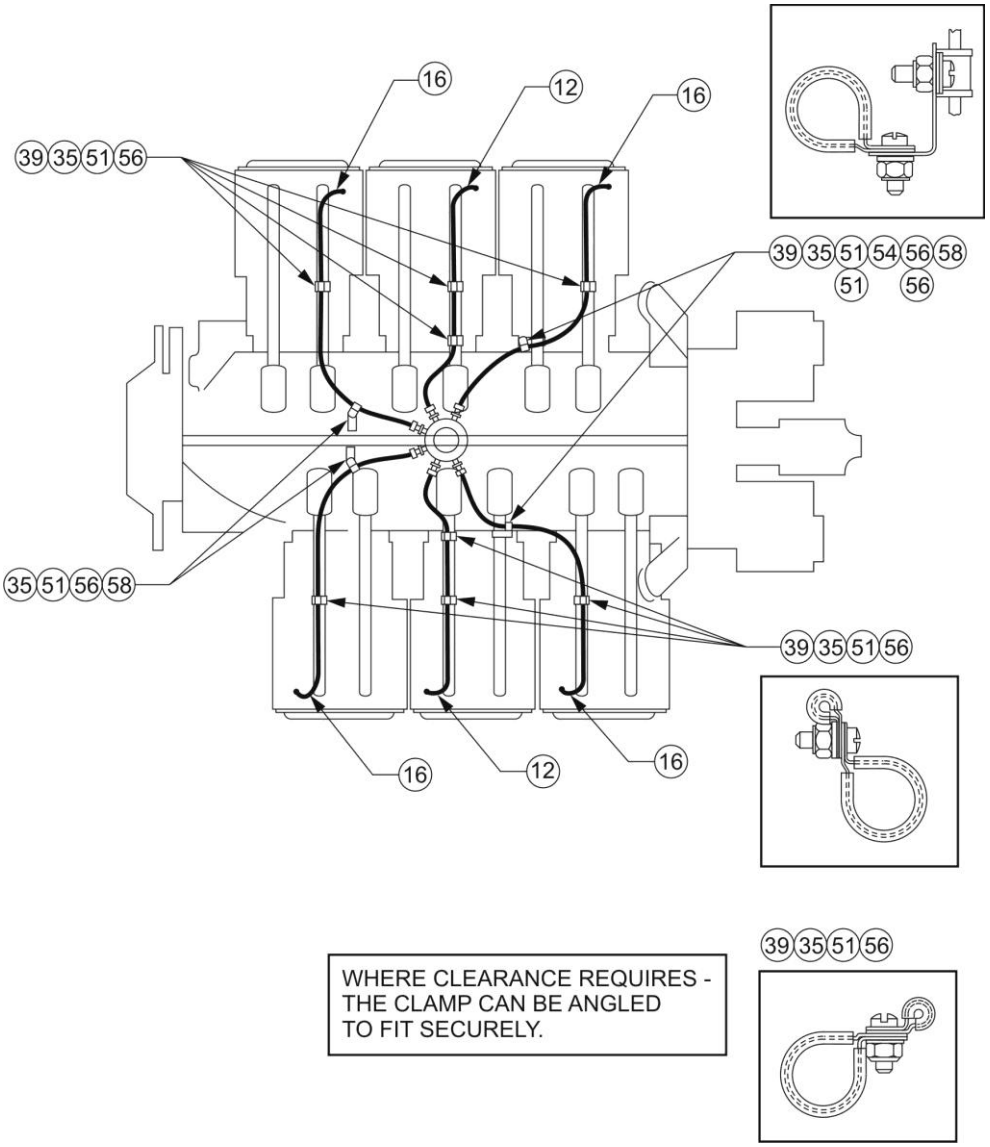
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	26 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 19 -- IO-540-C4D5D, G1C5, K1A5, K1A5D, K1B5, K1F5, K1F5D, K1G5, K1G5D, K1H5, K1J5, K1J5D, K1K5, AA1B5



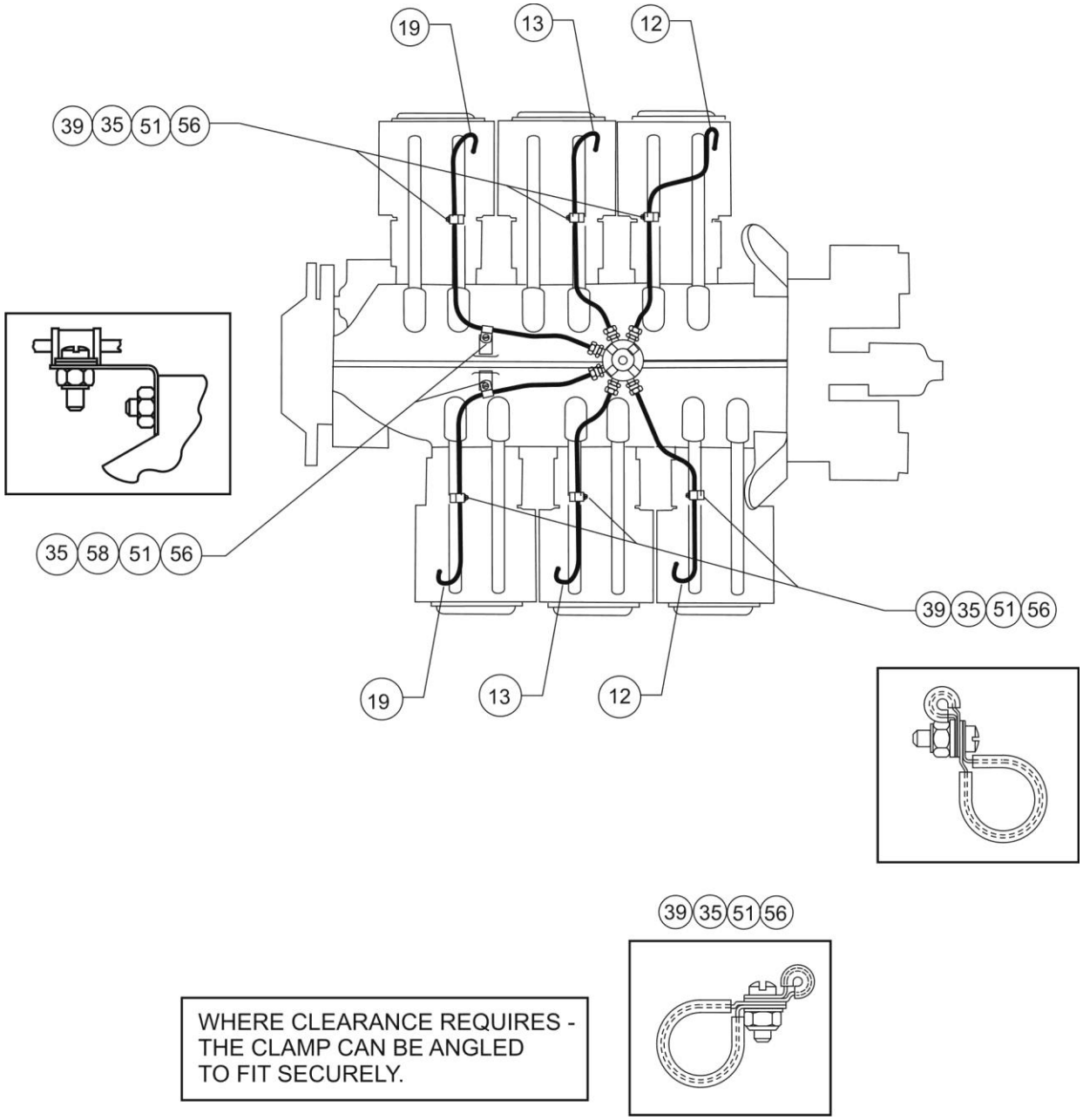
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	27 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 20 -- IO-540-A1A5, G1A5, G1B5, G1D5, G1E5, G1F5, K1A5, K1B5, K1C5, K1D5, K1E5, K1E5D, K1F5, K1H5, K1J5, P1A5, S1A5, T4A5D, T4B5, T4B5D, T4C5D, AA1A5
TIO-540-U2A, AE2A, AH1A
LTIO-540-U2A



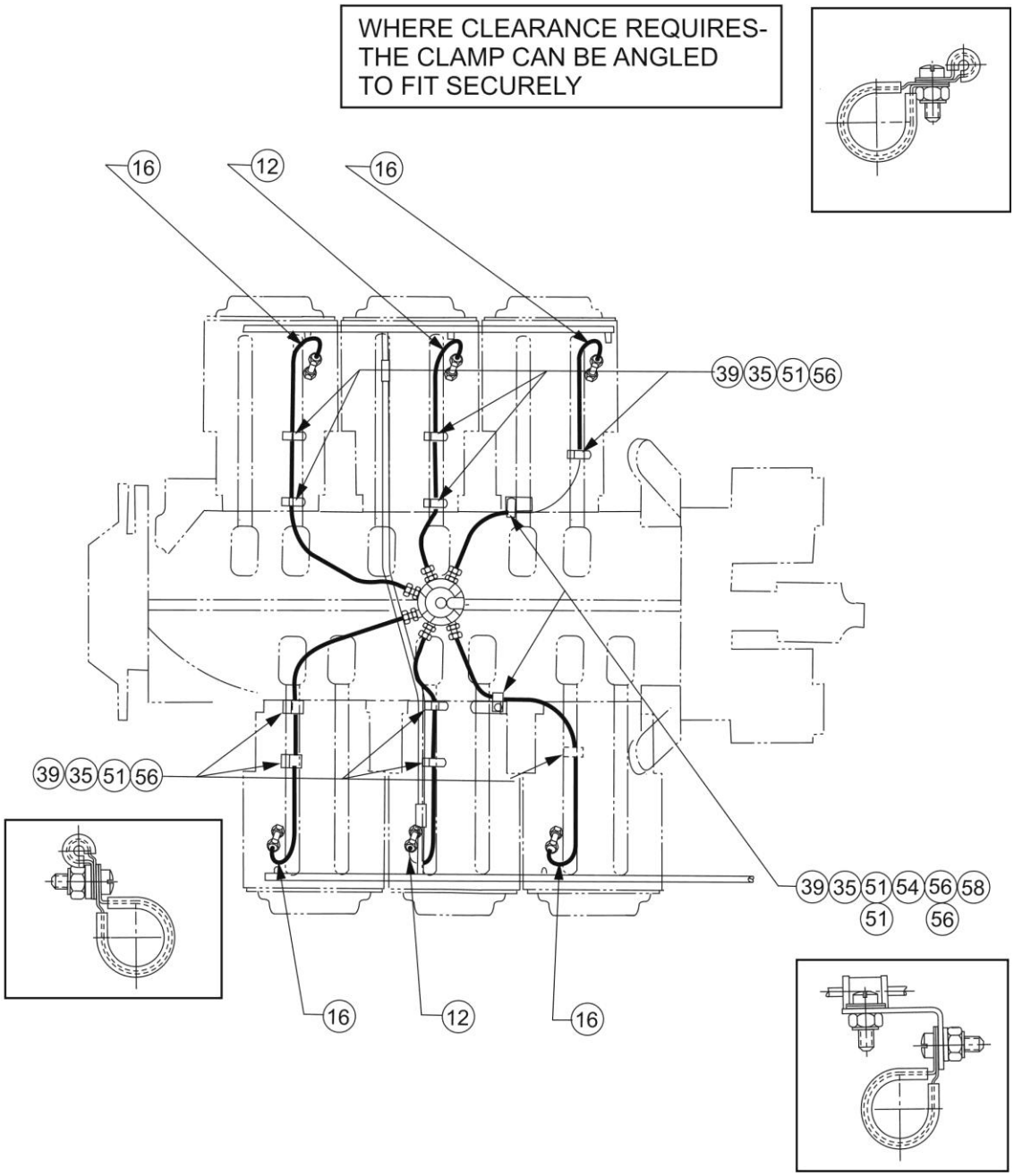
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	28 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 21 -- IO-540-AE1A5



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	29 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 22 -- AEIO-540-D4D5
TIO-540-AF1A, AF1B, AG1A, AA1AD, AB1BD



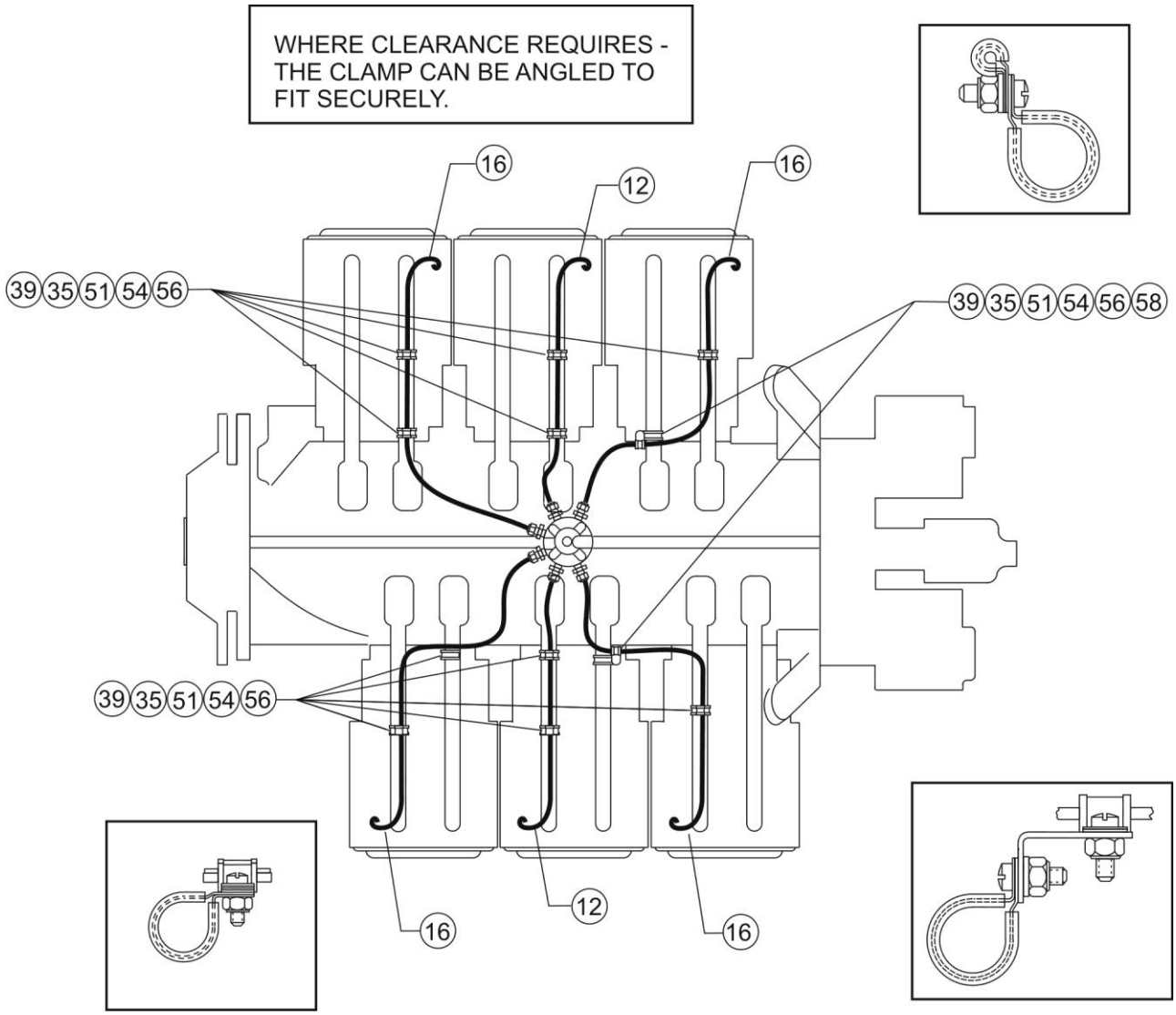
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	30 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 23 -- IO-540-AB1A5✶
IO-540-D4B5 ✶✶
TIO-540-AK1A

Note: Underlined engine models indicate new engine model added to the list.

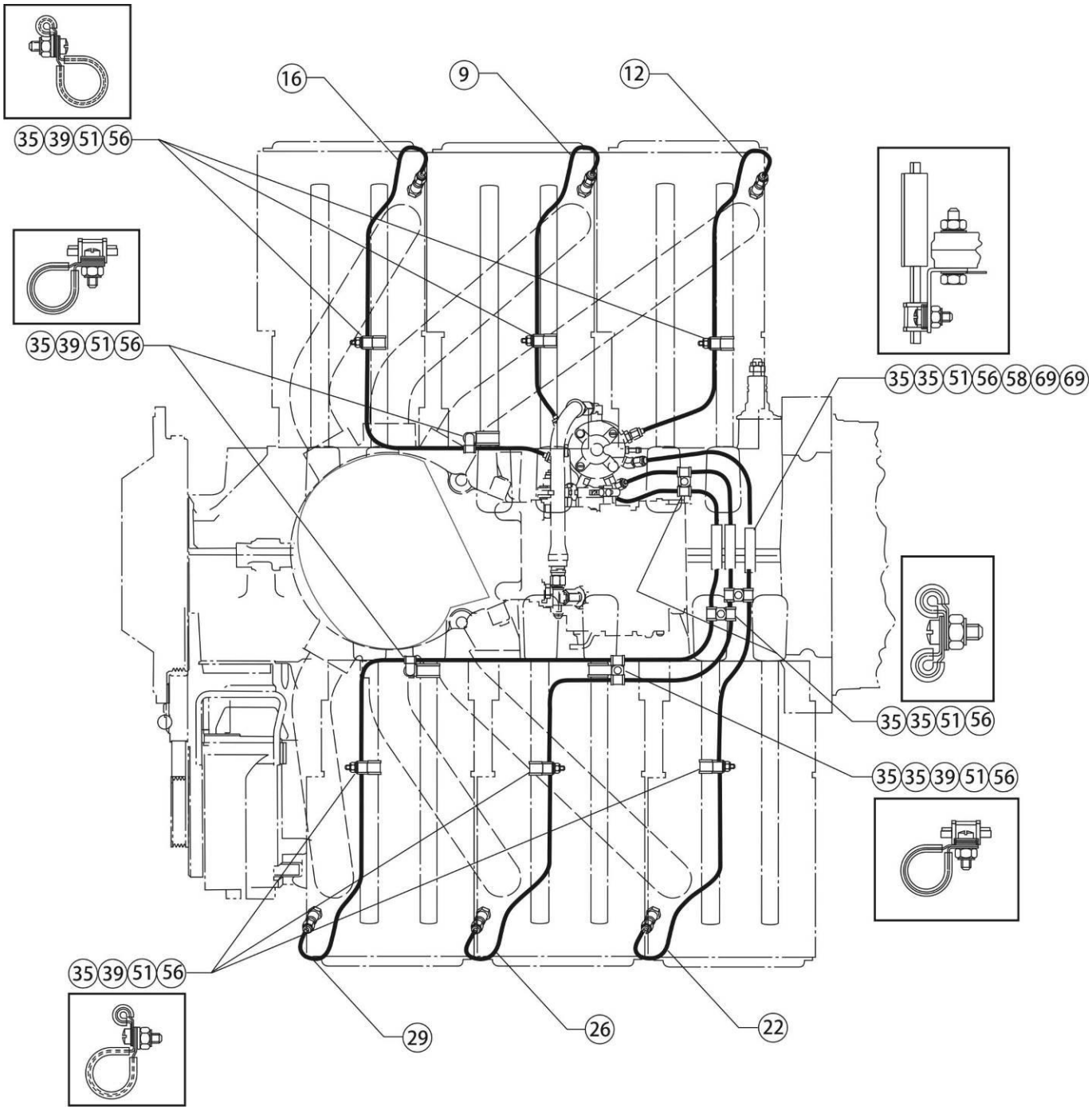
✶ Note manifold orientation.

✶✶ With fuel flow transducer – See Diagram 25 for model without fuel flow transducer.



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	31 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 24 -- IO-540-AC1A5
TIO-540-AJ1A



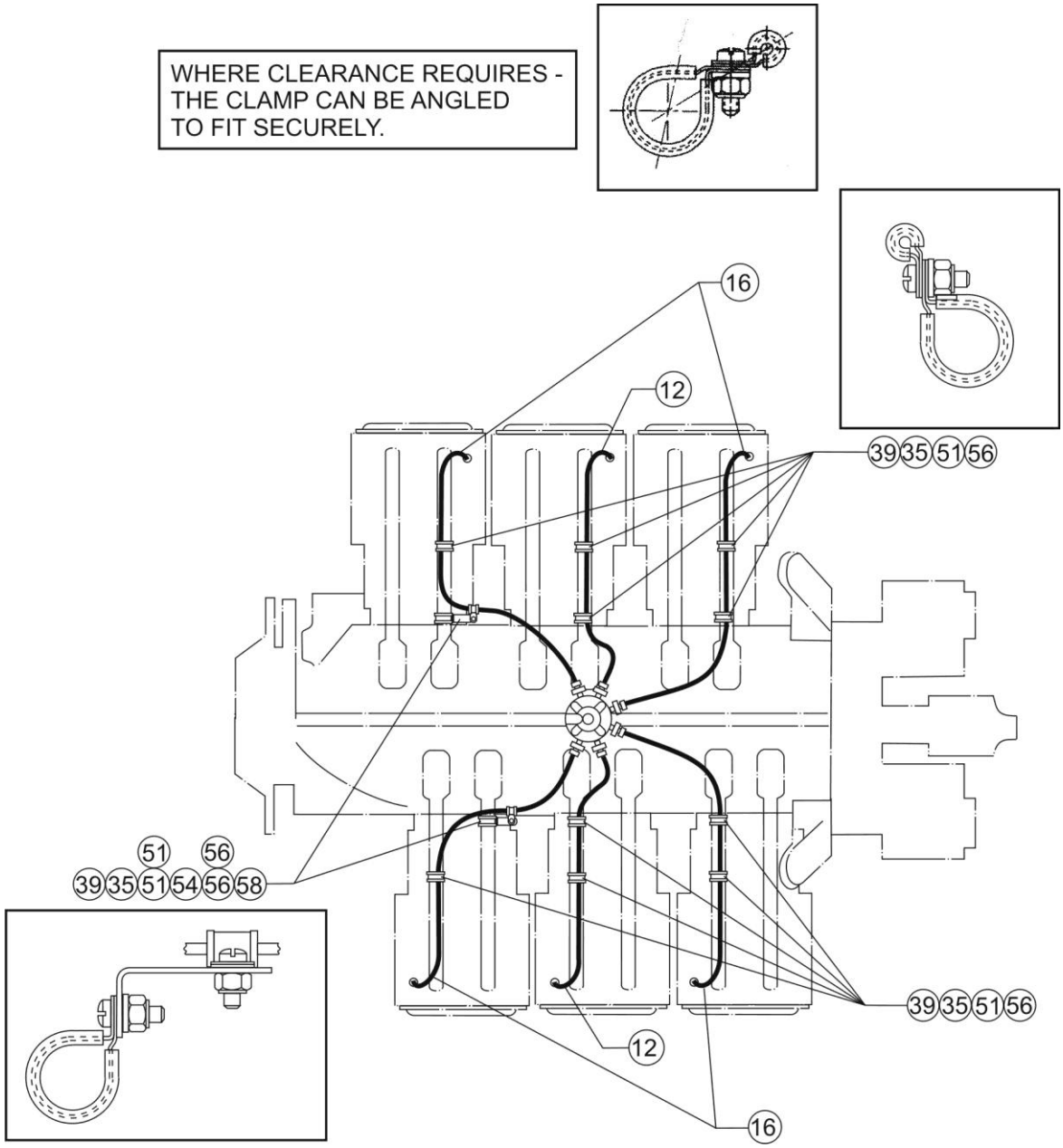
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	32 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 25 -- IO-540-A1A5, C1B5, C1C5, C4B5, C4D5D, D4A5, J4A5, L1C5, AB1A5✶
IO-540-D4B5 ✶✶
TIO-540-C1A, E1A, G1A, AB1AD
AEIO-540-D4A5, D4B5, L1B5, L1B5D, L1D5

Note: Underlined engine models indicate new engine model added to the list.

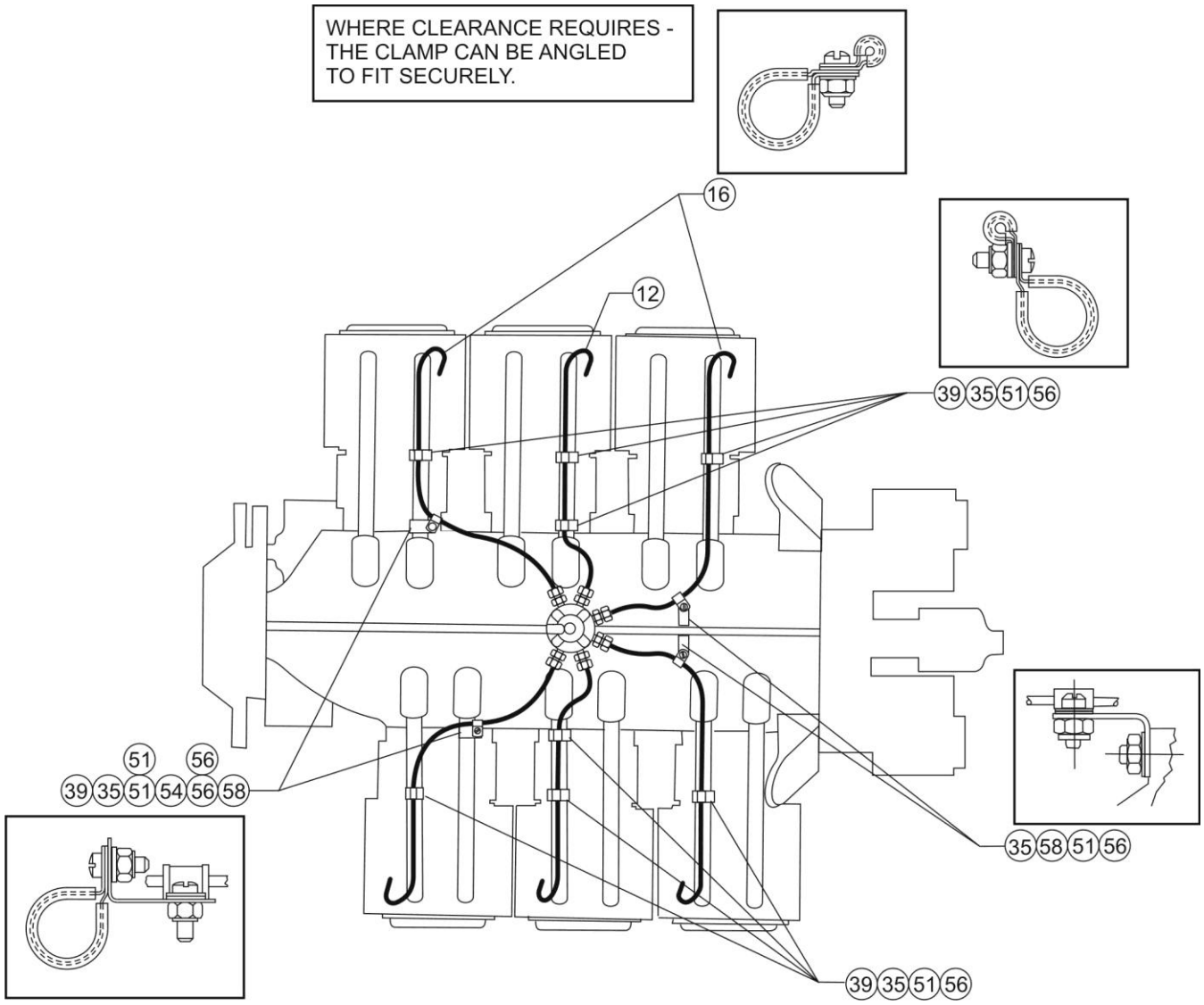
✶ Note manifold orientation.

✶✶Without fuel flow transducer – See Diagram 23 for model with fuel flow transducer.



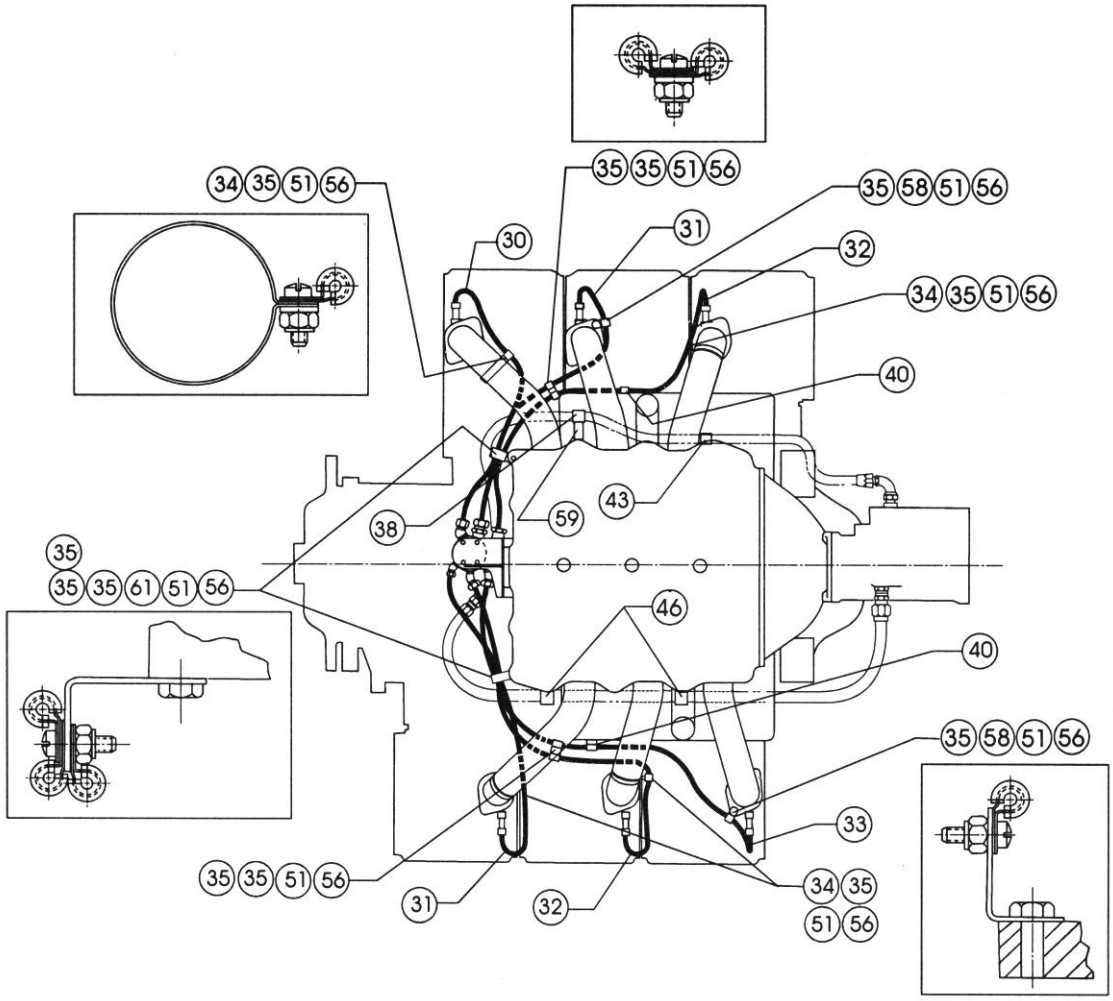
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	33 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 26 -- IO-540-N1A5, R1A5, V4A5, V4A5D, W1A5, W1A5D, W3A5D



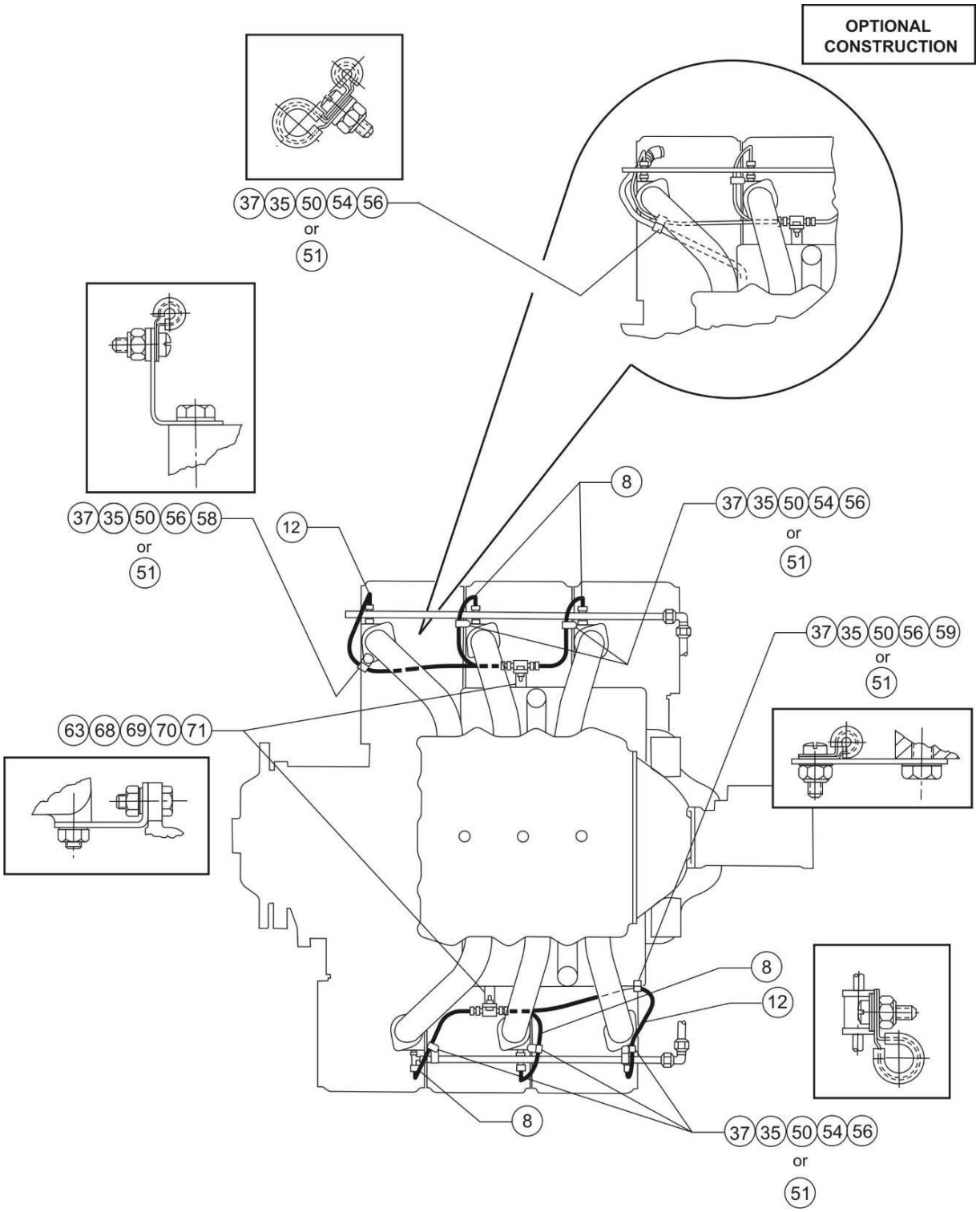
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	34 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 27 -- IO-540-B1A5, B1C5, E1A5, E1B5



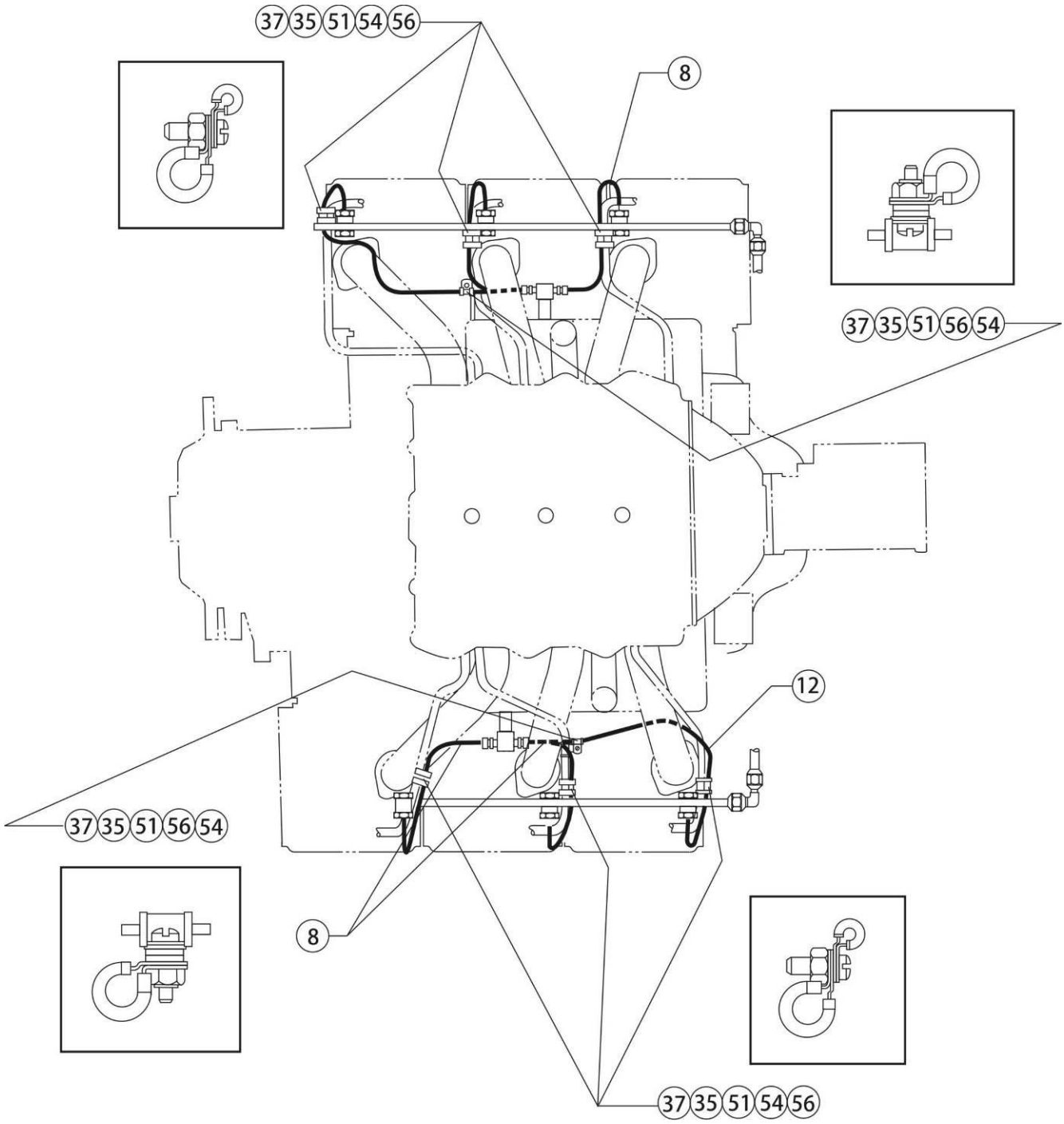
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	35 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 28 -- TIO-540-A1A, A1B, A2A, A2B, A2C, F2BD, J2B, J2BD, N2BD, R2AD
LTIO-540-F2BD, J2B, J2BD, N2BD, R2AD



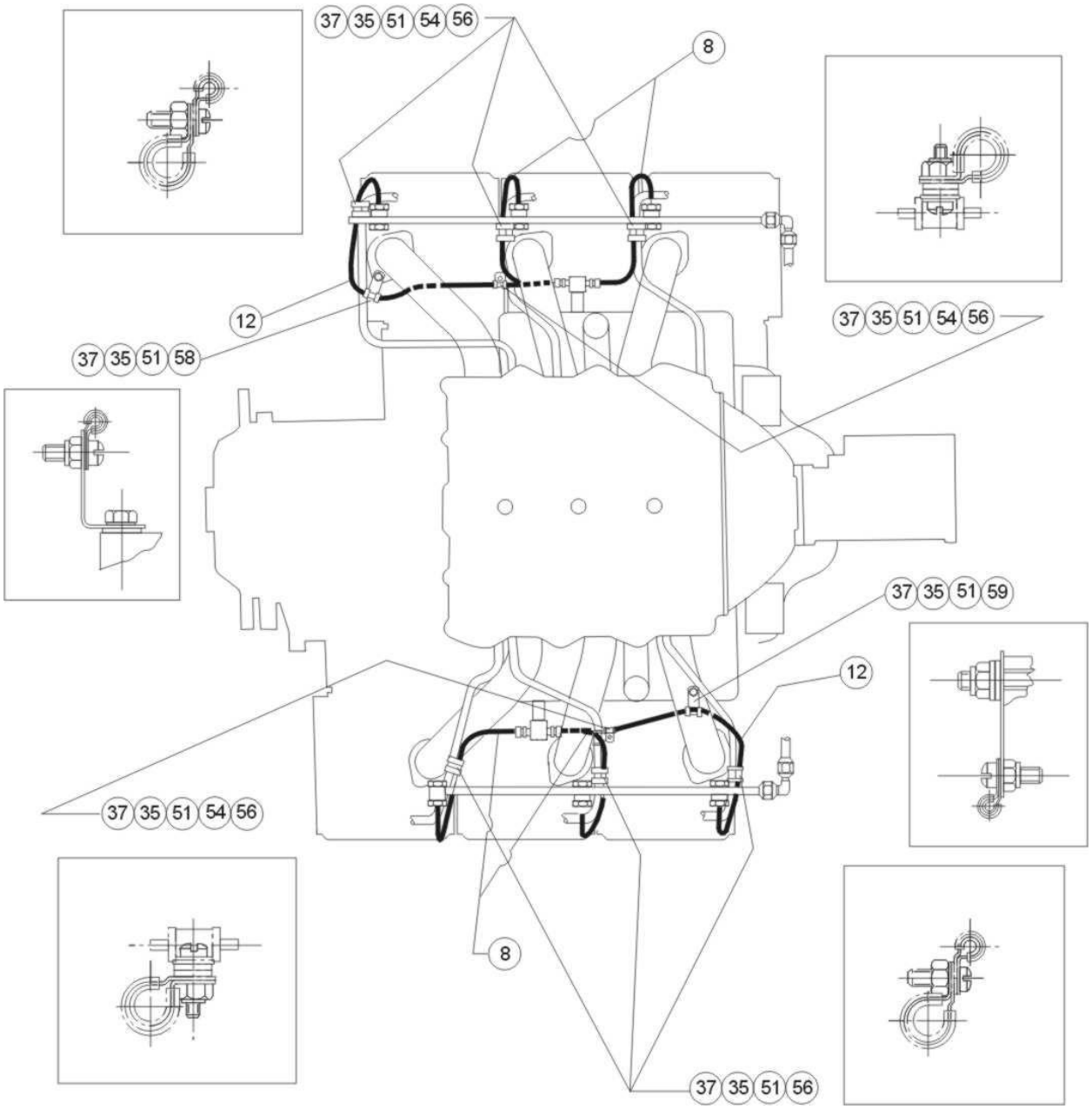
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	36 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 29 -- IO-540-M1A5, M1B5D



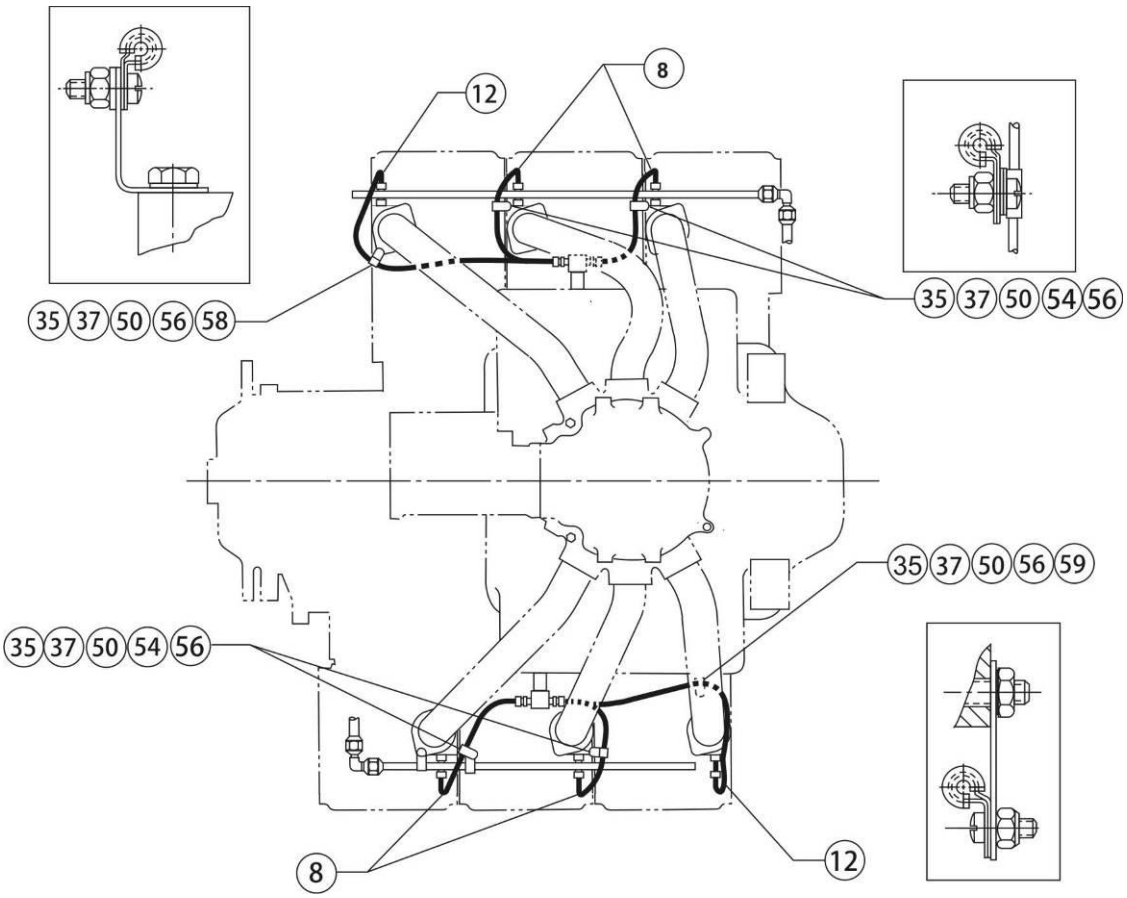
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	37 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 30 -- IO-540-M1C5



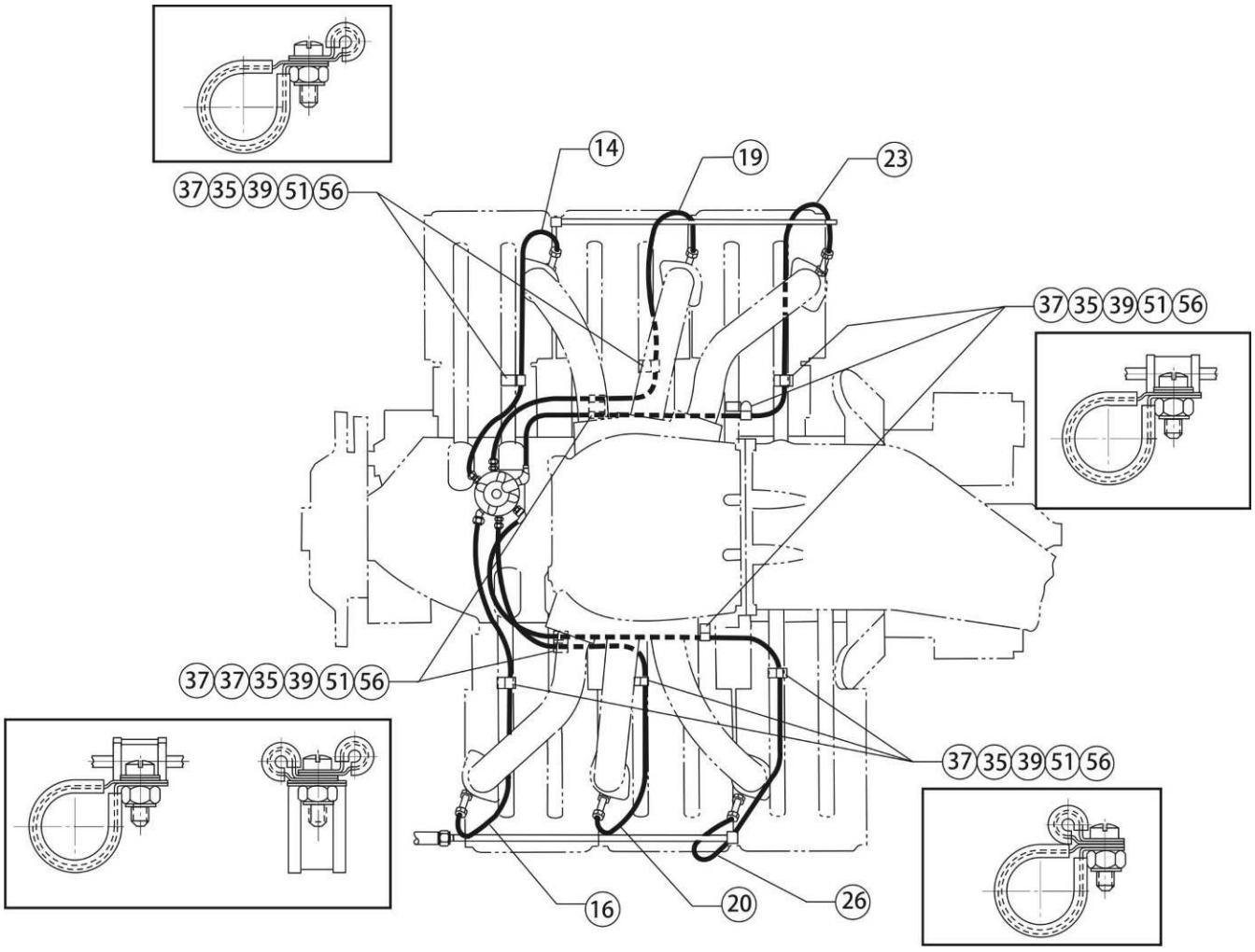
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	38 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 31 -- TIO-540-S1AD



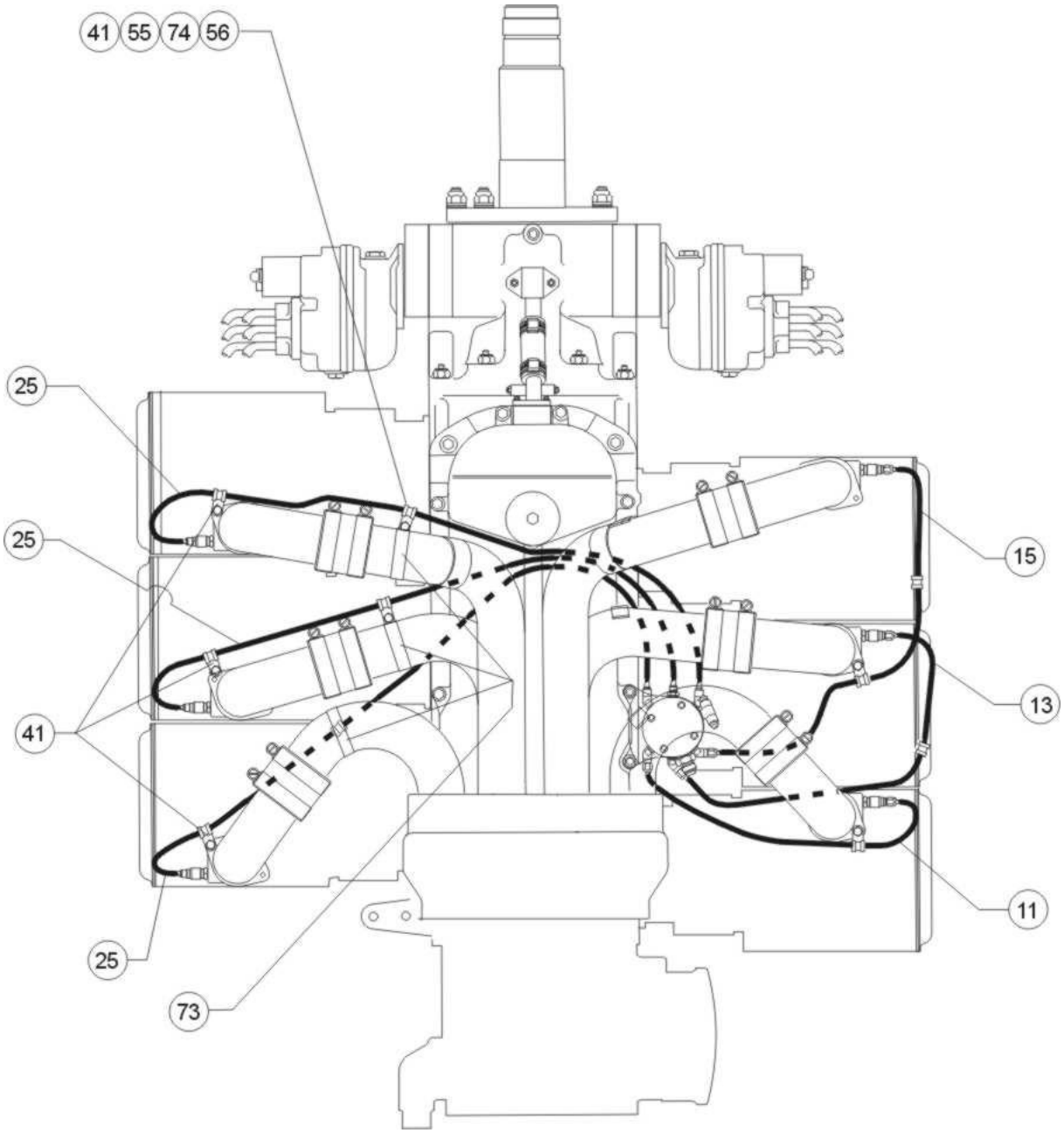
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	39 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 32 -- TIO-540-V2AD, W2A
LTIO-540-V2AD, W2A



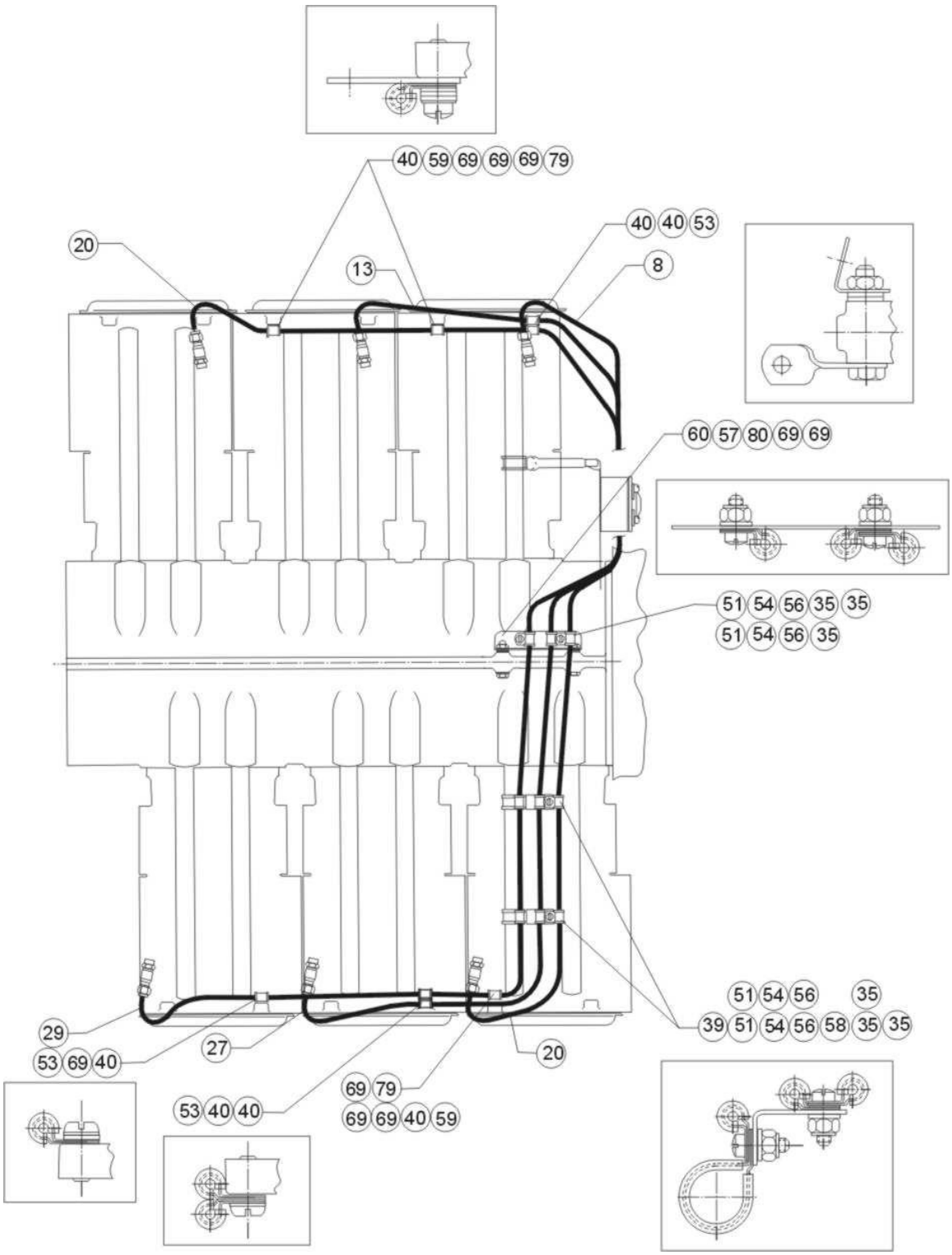
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	40 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 33 -- IGO-540-B1A, B1C



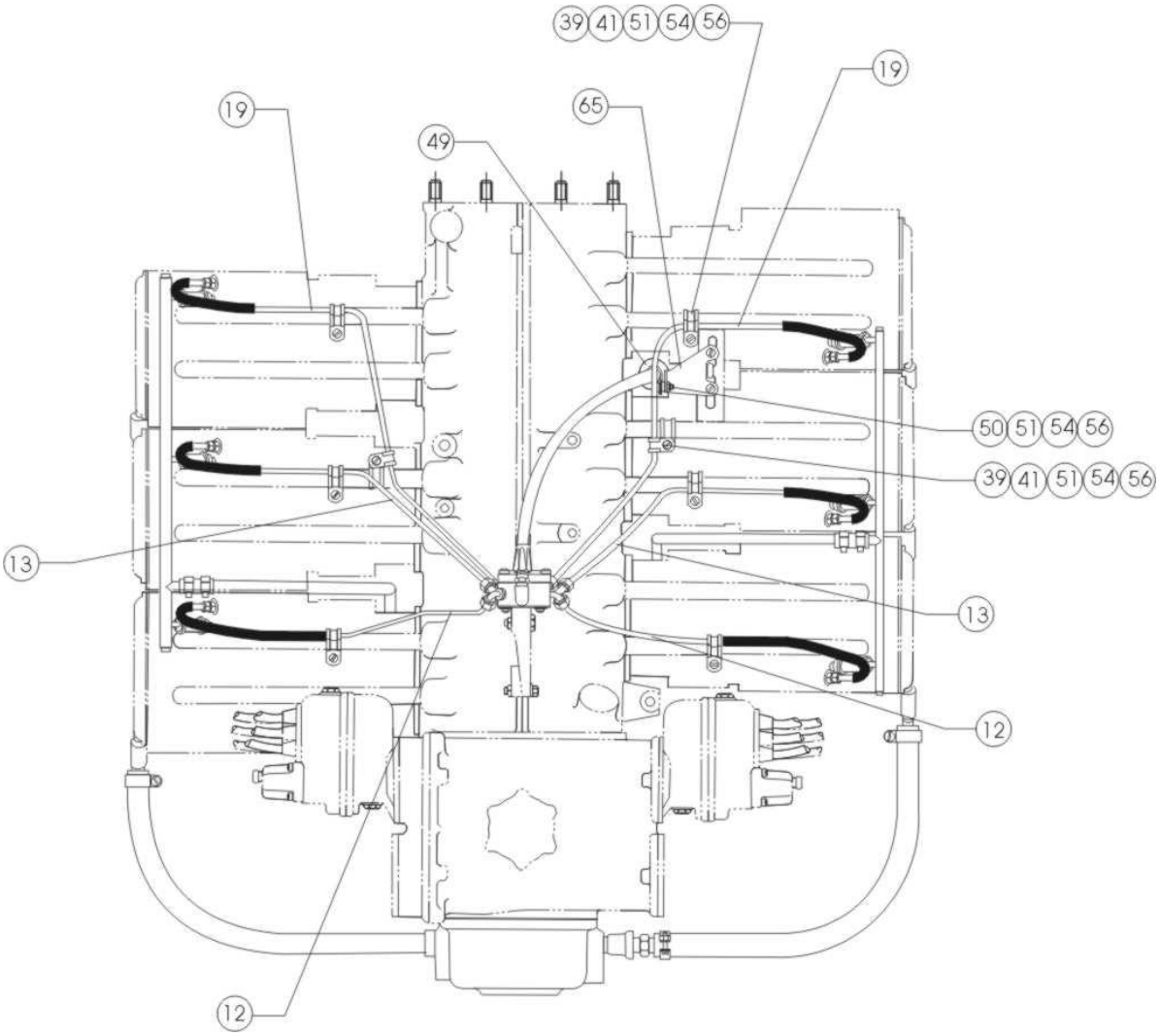
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	41 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 34 -- IVO-540-A1A



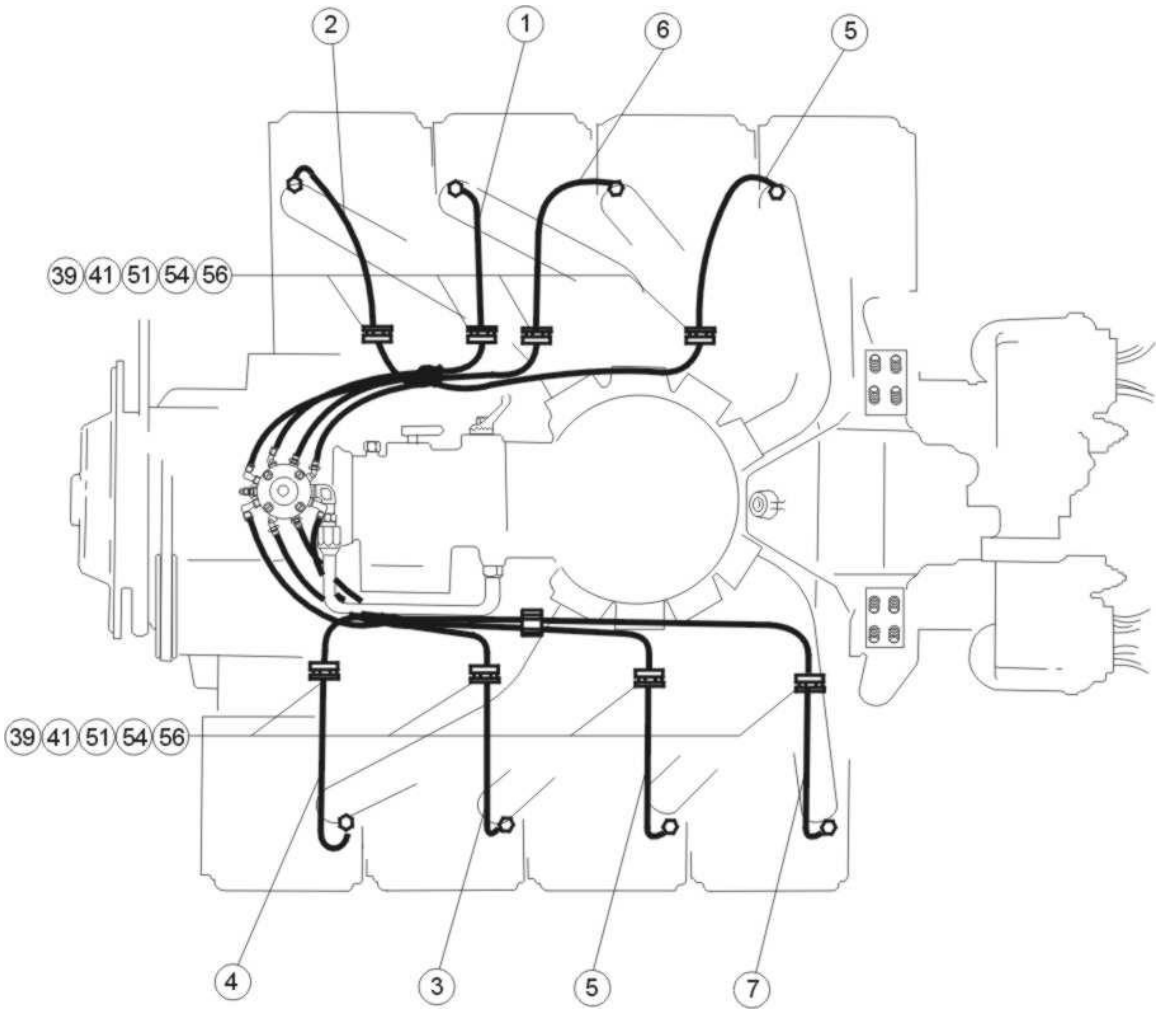
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	42 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 35 -- TIVO-540-A2A



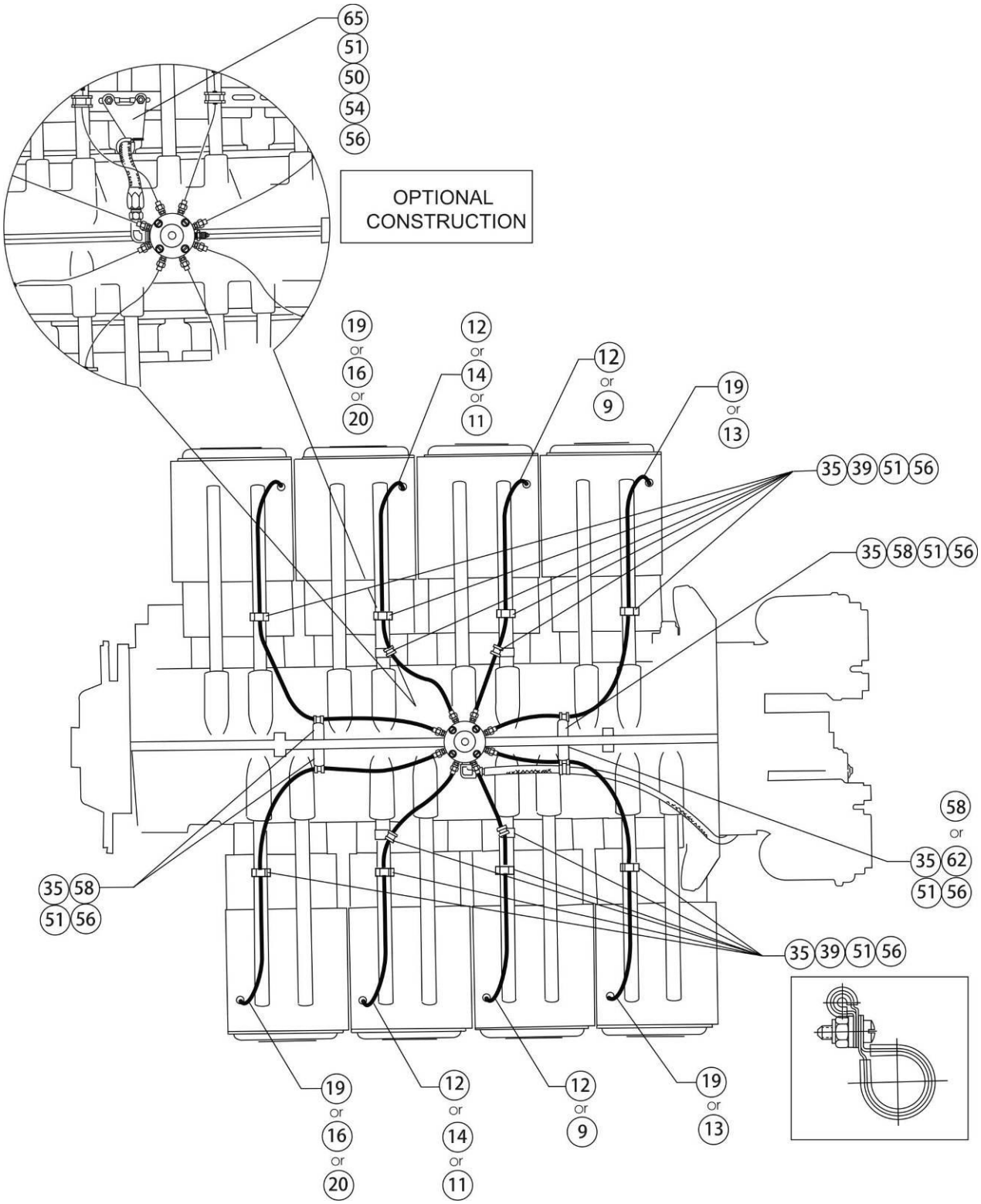
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	43 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 36 -- IO-720-A1A (View 1 of 2) Also see Diagram No. 37 for additional routing configuration.



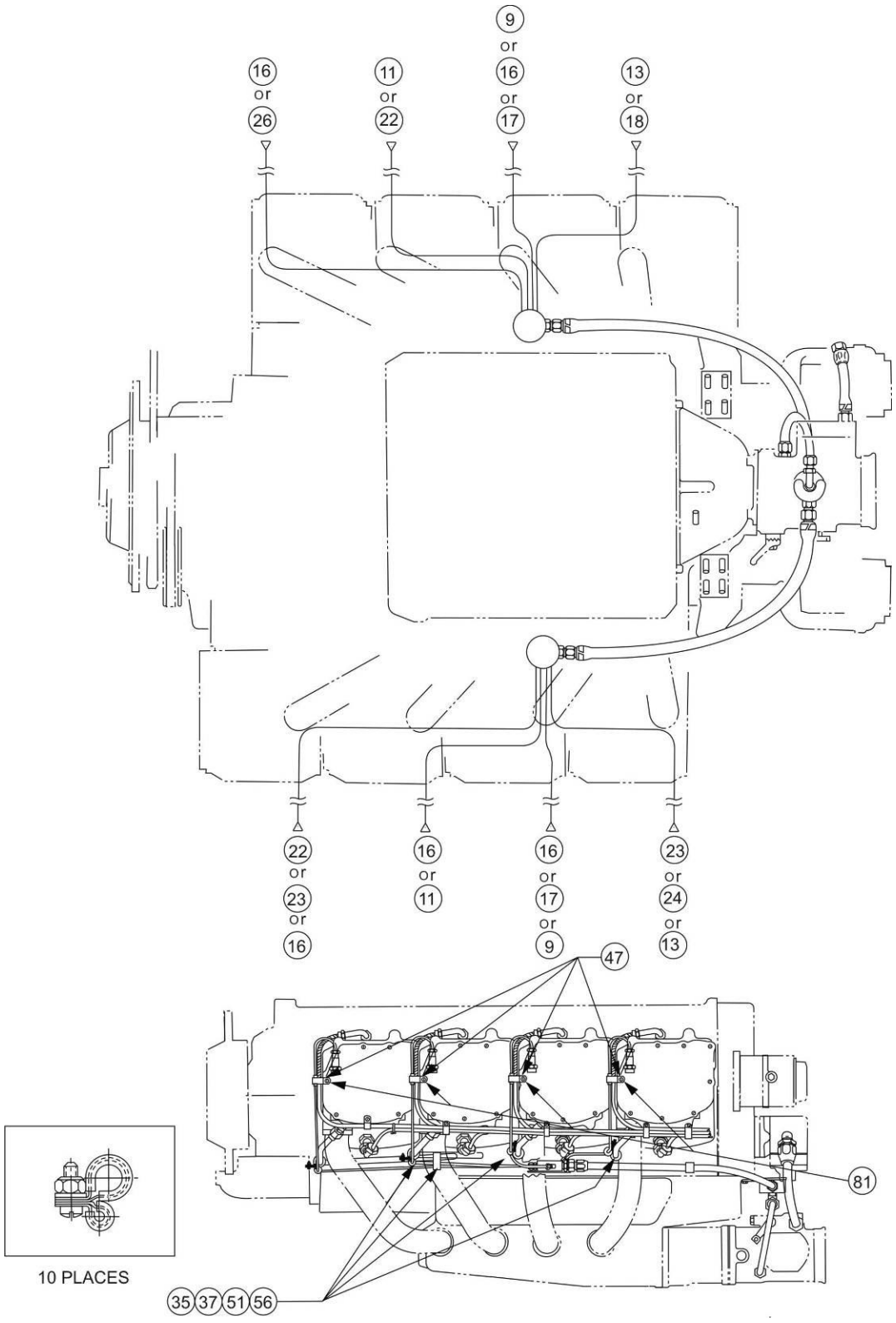
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	44 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 37 -- IO-720-A1A (View 2 of 2), A1B, D1B, D1BD, D1C, D1CD



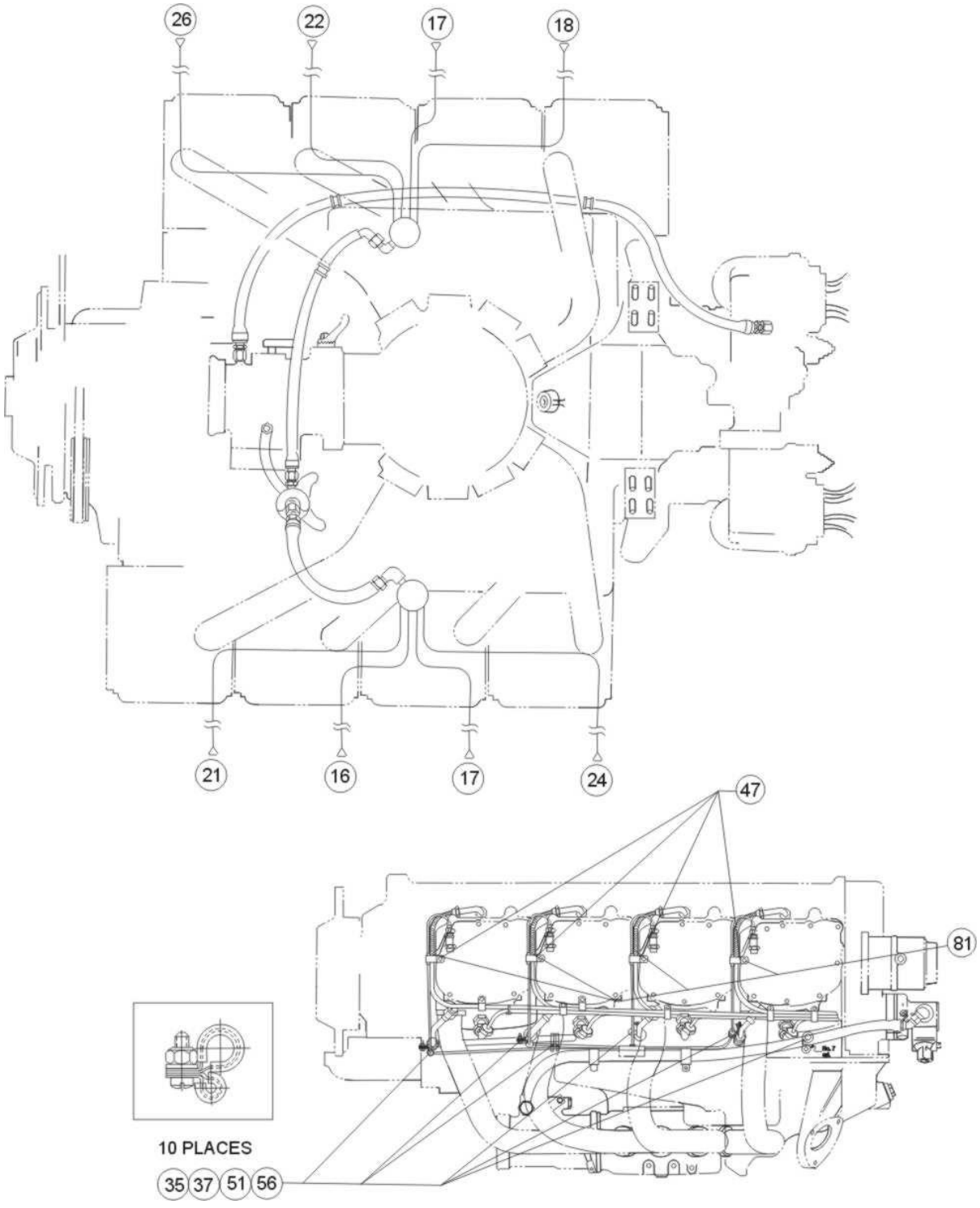
ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	45 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 38 -- IO-720-B1B, B1BD



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	46 of 47	G	S.B. 342
03	24	72	07	16	13			

Diagram No. 39 -- IO-720-C1B



ISSUED			REVISED			PAGE NO.	REVISION	
MO	DAY	YEAR	MO	DAY	YEAR	47 of 47	G	S.B. 342
03	24	72	07	16	13			