

HAND PRIMER

AMERICAN BOSCH MARKETING DIVISION**AMBAC**
INDUSTRIES INC.**SPRINGFIELD, MASS. 01107**

Supersedes Service Letters D-274, Issued February 21, 1966 & D-301, Issued December 15, 1967

SERVICE INSTRUCTIONS For AMERICAN BOSCH HAND PRIMER ASSEMBLIES

A hand primer is, basically, a hand operated, plunger type, positive displacement fuel supply pump. It is applied to a fuel system to provide a means to man-

ually prime the system with fuel and force out trapped air prior to cranking an engine for starting.

OPERATION

As the hand primer plunger is lifted, the resulting suction lifts the fuel supply pump inlet valve off its seat and draws fuel into the hand primer barrel. When the plunger is pressed down, the inlet valve returns to its seat and the trapped fuel, which is now under compression, is forced through the supply pump outlet valve into the fuel supply lines and injection pump.

SGB, SGC, SGD & SGE fuel supply pumps have two sets of inlet and outlet valves, one set for use during normal supply pump operation and the second for priming. The second set prevents the fuel which

is under pressure during normal supply pump operation from acting upon the hand primer plunger.

NOTE

Due to the relative simplicity of hand primer assemblies, the usual detailed disassembly, reassembly, etc. procedures that are a normal part of service instructions have been omitted in favor of pertinent service notes.

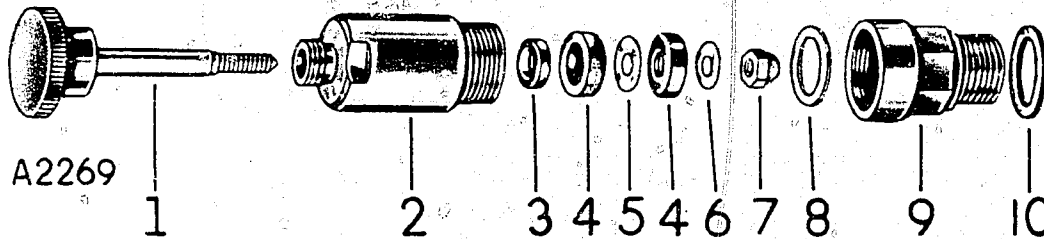
FPUE 2B 1Z

FIGURE 1

SERVICE NOTES

1. Remove the elastic stop nut (7) from the plunger stem assembly (1) by gripping the plunger knob in a soft jawed vise and using a 7/16" socket wrench.
2. Replace the gasket (8) and both plunger stem packings (4) at each overhaul. The packings should be immersed in clean lube oil for at least one hour prior to assembly.
3. If the barrel (2) I. D. is scored or grooved, re-
- place the hand primer.
4. When assembling the adapter (9) to the barrel (2), tighten the adapter to a torque of 35-40 lb. ft.
5. When assembling the hand primer to a fuel supply pump, tighten the hand primer to a torque of 30-35 lb. ft.
6. See applicable Supply Pump Service Instructions for testing procedure.

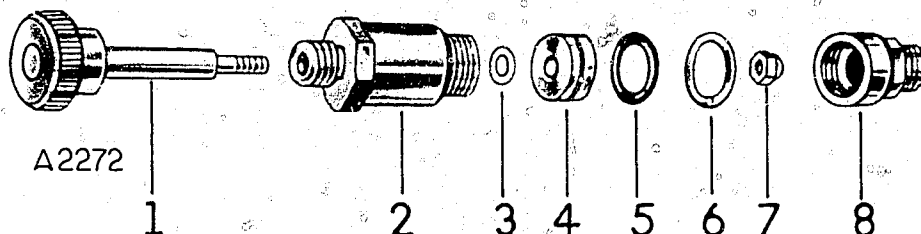
MP 793A & MP 794A

FIGURE 2

SERVICE NOTES

1. Remove the elastic stop nut (7) from the plunger stem assembly (1) by gripping the plunger knob in a soft jawed vise and using a 3/8" socket wrench.
2. Replace the "O" ring (5) and gasket (6) at each overhaul. Apply a film of American Bosch LU 3003 grease to the "O" ring at assembly.
3. If the barrel (2) I. D. is scored or grooved, replace the hand primer.
4. When assembling the adapter (8) to the barrel

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- (2), tighten the adapter to a torque of 35-40 lb. ft.
5. When assembling the hand primer to a fuel supply pump, tighten the hand primer to a torque of 30-35 lb. ft.
6. See applicable Supply Pump Service Instructions for testing procedure.

MP 795A

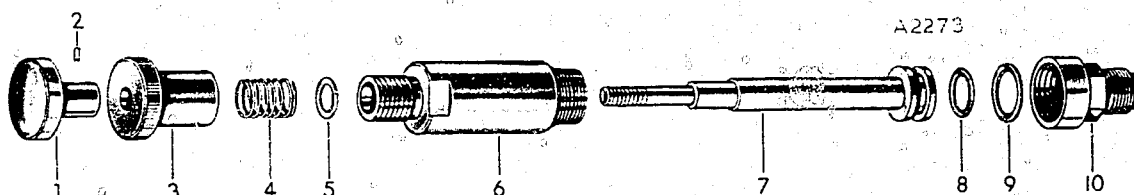


FIGURE 3

SERVICE NOTES

1. In order to remove the plunger stem assembly (7) from the barrel, proceed as follows:
 - a. Tap the pin (2) from the knob and plunger stem with a drift or rod.
 - b. Unscrew the retaining nut (3) from the barrel (6).
 - c. Pull the plunger stem assembly and knob out as far as possible, then grip the stem in a soft jawed vise. Take care not to score the stem.
 - d. Remove the knob (1) from the plunger stem with a pair of pliers.
 2. Replace the "O" ring (8) and gasket (9) at each overhaul. Apply a film of American Bosch LU 3003 grease to the "O" ring at assembly.
 3. Replace the barrel (6) if the I. D. is scored or grooved.
 4. Reassemble the plunger stem assembly (7) to the barrel as follows:
 - a. Insert the plunger stem assembly, with the "O" ring (8) installed, into the barrel.
 - b. Assemble the washer (5) spring (4) and nut (3) to the plunger stem.
 - c. Grip the plunger stem in a soft jawed vise. Take care not to score the stem.
 - d. Apply a thin coat of "Loctite A" sealant to the stem threads.
 - e. Assemble the knob (1) and tighten it in place with a pair of pliers. File off any burrs caused by the pliers.
 - f. Drill a 5/64" hole through the knob and plunger stem and press in a pin (2), chamfered end first.
- NOTE: Do not secure the nut (3) to the barrel until the hand primer has been satisfactorily tested.
5. When assembling the adapter (10) to the barrel (6), tighten the adapter to a torque of 35-40 lb. ft.
 6. When assembling the hand primer to a fuel supply pump, tighten the hand primer to a torque of 30-35 lb. ft.
 7. See applicable Supply Pump Service Instructions for testing procedure.

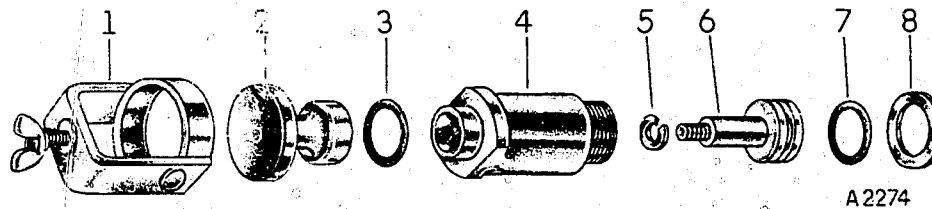
MP 798A

FIGURE 4

SERVICE NOTES

1. In order to remove the plunger stem assembly (6) from the barrel (4), proceed as follows:
 - a. Loosen the bracket assembly (1) wing nut and remove the assembly.
 - b. Pull the plunger stem assembly (6) and knob (2) out as far as possible, then grip the stem in a soft jawed vise. Take care not to score the stem.
 - c. Remove the knob from the plunger stem with a pair of pliers. File off any burrs caused by the pliers.
2. Replace the "O" rings (3 & 7) and gasket (8) at each overhaul. Apply a film of American Bosch

LF 3003 grease to the "O" rings at assembly.

3. Replace the barrel (6) if the I. D. is scored or grooved.
4. When assembling the hand primer to a supply pump, tighten the hand primer to a torque of 35-40 lb. ft.

NOTE: When an adapter is used between the hand primer and supply pump, assemble the adapter to the hand primer (tighten the adapter to a torque of 35-40 lb. ft.) and then install the assembly on the supply pump (tighten the assembly to a torque of 30-35 lb. ft.).

5. See applicable Supply Pump Service Instructions for testing procedure.

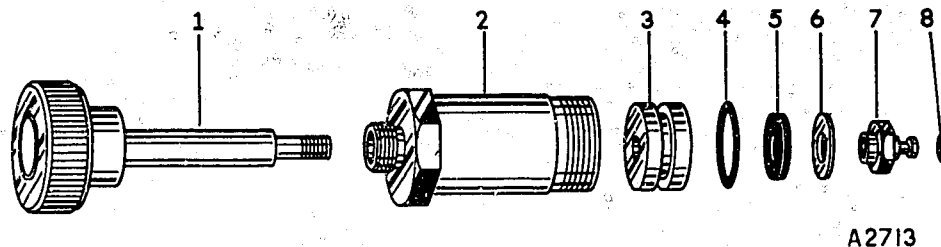
MP 901A

FIGURE 5

- Continued -

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SERVICE NOTES

1. Remove the nut (7) from the plunger stem assembly (1) by gripping the plunger knob in a soft jawed vise and using a 3/8" socket wrench.
2. Replace the "O" rings (4 & 8) and gasket (5), at each overhaul. Apply a film of American Bosch LU 3003 grease to the "O" ring (4) at assembly.
3. If the barrel (2) I. D. is scored or grooved, replace the hand primer.
4. When assembling the hand primer to a fuel supply pump, tighten the hand primer to a torque of 35-40 lb. ft.
5. See applicable Supply Pump Service Instructions for testing procedure.

MP 7912A

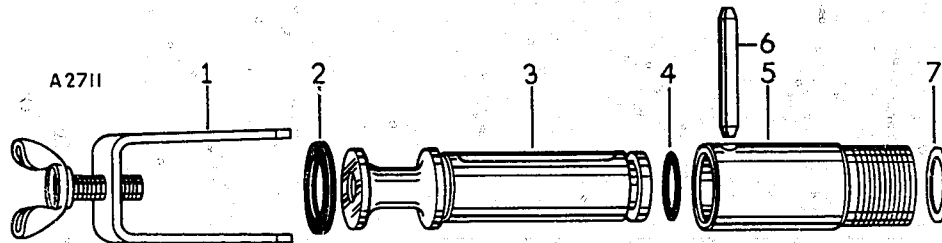


FIGURE 6

SERVICE NOTES

NOTE: A faulty hand primer that has an "R" stamped on top of the plunger is to be replaced.

1. In order to remove the plunger (3) and/or bracket assembly (1) from the barrel (5), the cross pin (6) must be removed first. Take care not to distort the barrel when removing the pin.
 2. Replace the hand primer if the barrel (5) I. D. is scored or grooved.
 3. Replace the sealing washer (2), "O" ring (4) and gasket (7) at each overhaul. Apply a film of American Bosch LU 3003 grease to the "O" ring at assembly.
 4. When reassembling the hand primer components, proceed as follows:
 - a. Stamp an "R" on top of the plunger knob.
 - b. Insert the plunger (3), with the "O" ring (4) and sealing washer (2) installed, into the barrel (5).
 - c. Align the slots in the plunger with the holes in the barrel.
 - d. Align the holes in the bracket assembly (1) with the holes in the barrel and press in a NEW cross pin (6) - do not distort the barrel. The pin should be centered in the barrel so that the pin protrudes equally on each side of the bracket.
 5. Pull the plunger (3) back approximately 1/8" before assembling the hand primer to a fuel supply pump. Engage service tool TSE 76230 (Bacharach code 72-0118) to the cross pin and tighten the hand primer to a torque of 35-40 lb. ft.
- NOTE: When an adapter is used between the hand primer and supply pump, assemble the adapter to the hand primer (tighten the adapter to a torque of 35-40 lb. ft.) and then install the assembly on the supply pump (tighten the assembly to a torque of 30-35 lb. ft.).
6. See applicable Supply Pump Service Instructions for testing procedure.

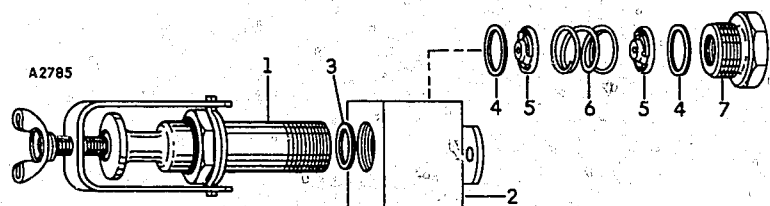
MP 7914A

FIGURE 7

SERVICE NOTES

NOTE: Except for the following, see MP 7915A for hand primer service notes.

1. Replace the valve gaskets (3) at each overhaul.
2. Both check valves (4) should face the inlet fitting (6) at assembly.
3. Apply Loctite "A" sealant to the inlet fitting threads at assembly and tighten the fitting to a torque of 35-40 lb. ft.
4. When assembling the hand primer to the valve body (2), tighten the hand primer to a torque of 35-40 lb. ft.
5. Test the assembly as follows:

TEST EQUIPMENT

- a. A 6 foot length of 5/16" I. D. inlet hose, preferably transparent with a .250 NPTF fitting.
- b. A tank of clean calibrating oil.
- c. A hand primer clamping fixture that will position the hand primer approximately 3

feet above the surface of the oil in the tank.

- d. A means to pressurize the fuel in the inlet hose to 50 PSI.

TEST PROCEDURE

- a. Secure the hand primer assembly in the clamping fixture.
- b. Connect the hose to the inlet fitting (6). Not more than 12 inches of the hose should be submerged in the calibrating oil, or located below the oil level.
- c. Operate the primer plunger with full, rhythmic strokes until calibrating oil appears at the discharge outlet. Oil must appear at the outlet within 50 strokes, and the plunger must move freely with no binding.
- d. Secure the primer plunger with the locking bracket and thumb screw, close the discharge outlet with a .250 NPTF pipe plug, and pressurize the oil in the inlet hose to 50 PSI. There should be no oil leakage past the plunger, at the shoulder of the inlet fitting (6), or at the junction of the hand primer and valve body.

MP 7915A

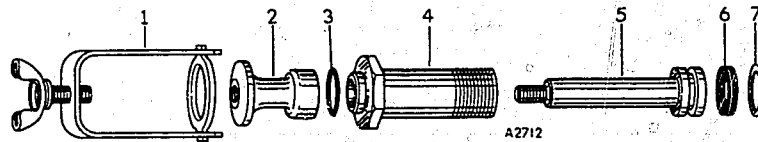


FIGURE 8

SERVICE NOTES

1. In order to remove the plunger stem assembly (5) from the barrel (4), proceed as follows:

- a. Loosen the bracket assembly (1) wing nut and remove the assembly.
- b. Pull the plunger (5) and knob (2) out as far as possible, then grip the plunger stem in a vise. Take care not to score the stem.
- c. Remove the knob (2) from the plunger with a pair of pliers. File off any burrs caused by the pliers.

2. Replace the "O" ring (3) and gaskets (6 & 7) at each overhaul. Apply a film of American Bosch LU 3003 grease to the "O" ring at assembly.

3. Replace the barrel (4) if the I. D. is scored or grooved.

4. When assembling the hand primer to a supply pump, tighten the hand primer to a torque of 35-40 lb. ft.

NOTE: When an adapter is used between the hand primer and supply pump, assemble the adapter to the hand primer (tighten the adapter to a torque of 35-40 lb. ft.) and then install the assembly on the supply pump (tighten the assembly to a torque of 30-35 lb. ft.).

5. See applicable Supply Pump Service Instructions for testing procedure.