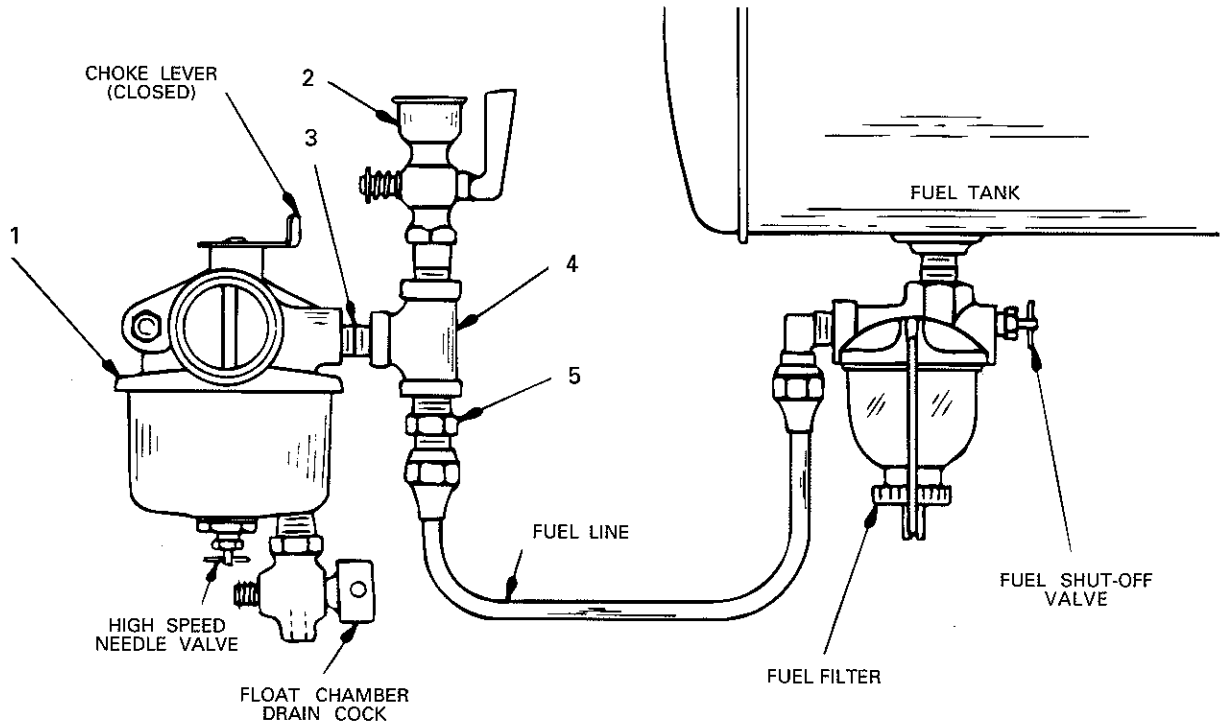
## Carburetors, Fuel Oil Or Kerosene By Engine Model

| MODEL | DESCRIPTION | PART NO. |
|---|---|---|
| ABO, ABNO, AKO, AKNO | | L51FS1 (ABO, ABNO), L51ES1 (AKO, AKNO) |
| ACNO, BKNO | | L51FS1 (ACNO), L51ES1 (BKNO) |
| AEHO, AFHO, AGHO, AHHO | | Standard carburetor |
| AENLO | | Standard carburetor |
| AGNOD | | Standard carburetor |
| S7DO (Obsolete) | | L80JS1 |
| S8DO (Obsolete) | | L80QS1 |
| S10DO | | L86ES1 |
| S12DO | | L86FS1 |
| TEO, TFO (Obsolete) | Open engine or power unit | L48M (TFO open engine) |
| (Obsolete) | | L48P (TEO power unit) |
| (Obsolete) | | L48Q (TEO open engine) L63JS1 (TFO power unit) |
| THO | Open engine or power unit | L63J |
| VEO4, VFO4 | Open engine or power unit (Repl. by L63F) | L48-1, L48-3 |
| VHO4 | Open engine or power unit | L63F |
| VPO4D, VGO4D | Open engine or power unit | L54P |
| VRO4D (Obsolete) | Open engine or power unit | L56A |

## Carburetors, Fuel Oil Or Kerosene By Part Number

| PART NO. | DESCRIPTION | MODEL |
|---|---|---|
| L51FS1 (ABO, ABNO), L51ES1, (AKO, AKNO) | | ABO, ABNO, AKO, AKNO |
| L51FS1 (ACNO), L51ES1 (BKNO) | | ACNO, BKNO |
| Standard carburetor | | AEHO, AFHO, AGHO, AHHO |
| Standard carburetor | | AENLO |
| Standard carburetor | | AGNOD |
| L80JS1 | | S7DO |
| L80QS1 | | S8DO |
| L86ES1 | | S10DO |
| L86FS1 | | S12DO |
| L48M (TFO open engine) | | |
| L48P (TEO power unit) | | |
| L48Q (TEO open engine) | | |
| L63JS1 (TFO power unit) | Open engine or power unit | TEO, TFO |
| L63J | Open engine or power unit | THO |
| L48-1, L48-3 | Open engine or power unit | VEO4, VFO4 |
| L63F | Open engine or power unit | VHO4 |
| L54P | Open engine or power unit | VPO4D, VGO4D |
| L56A | Open engine or power unit | VRO4D |

## L51FS1, L51ES1 No. 1 Fuel Oil Or Kerosene Burning Engines




Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression heads and special fittings in carburetor. Do not use this fuel in a standard engine.

The engines must be started on gasoline. Usually one carburetor float chamber full of gasoline is sufficient for warming up. The engine is furnished with a priming cup as well as a drain cock in the carburetor float chamber.

Before starting the engine, fill tank with fuel and engine crankcase with a good grade of lubricating oil. Close the valve below the tank and open the carburetor drain cock so any fuel which might be in the carburetor float chamber will be drained out. Next, close the float chamber drain cock and fill the carburetor float chamber with gasoline by means of the priming cup. After the float chamber is filled and the priming cup closed, the fuel shut-off valve below the tank can be opened.

With the magneto switch in the running position, the high speed needle valve below the carburetor adjusted to about one and one half turns open, the carburetor choke lever can be closed and the engine cranked.

After the engine starts and warms up, adjust the carburetor high speed needle valve for smoothest operation.

With No. 1 fuel oil or kerosene there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

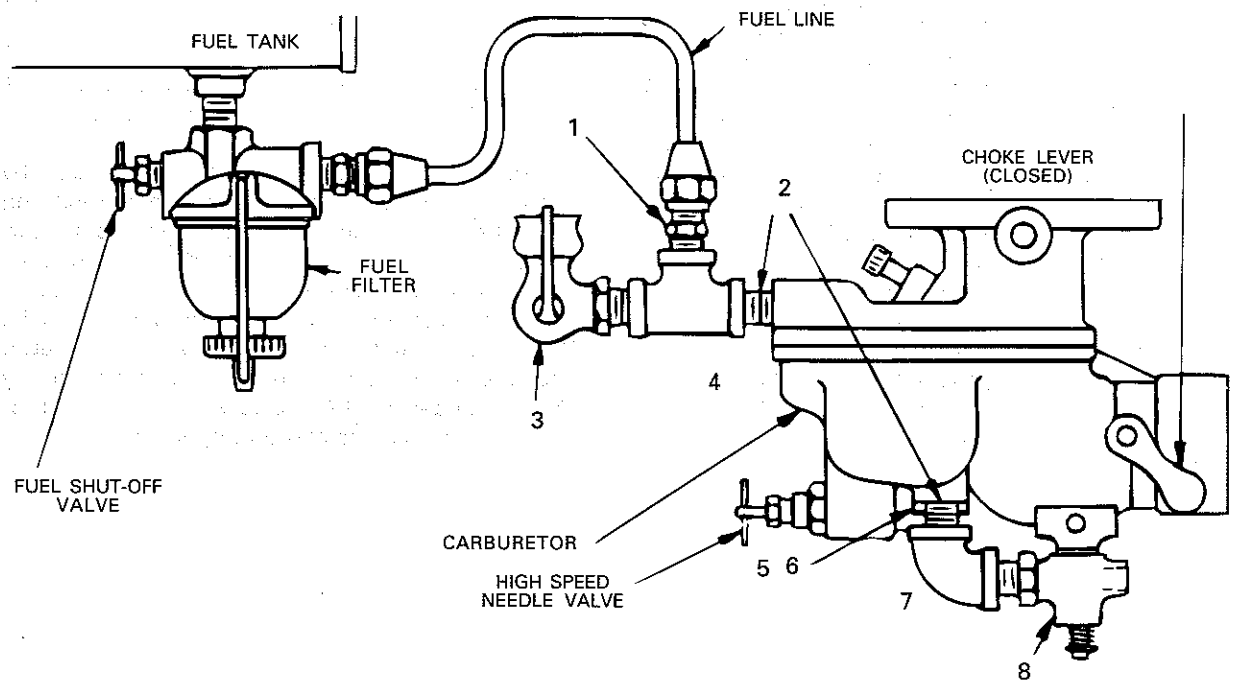
## L51FS1, L51ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODELS ABO, ABNO, AKO, AKNO (see pg. 1)**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB76F | Cylinder head (ABO, ABNO) (obsolete) | 1 |
| — | AB78F | Cylinder head (AKO, AKNO) (obsolete) | 1 |
| — | L51FS1 | Zenith carburetor assembly (RG43) (optional) | 1 |
| 1 | † LZ52F1 | Schebler carburetor assembly (RG43) (ABO, ABNO) (replaces LZ52-1) (obsolete) | 1 |
| — | † L51ES1 | Zenith carburetor assembly (RG43) (optional) | 1 |
| — | † LZ52B1 | Schebler carburetor assembly (RG15) (AKO, AKNO) (replaces LZ52A1) (obsolete) | 1 |
| 2 | RF794 | Priming cup | 1 |
| 3 | RF794 | Pipe nipple, 1/8" x 3/4" long | 1 |
| 4 | XK63 | Tee, 1/8" | 1 |
| 5 | RF269 | Straight fitting | 1 |

† Stromberg carburetor assemblies are replaced by Zenith or Schebler carburetors; when replacing Schebler or Stromberg carburetor with Zenith carburetor, refer to engine parts list for correct air cleaner bracket and support strap: LZ26-5 Stromberg carburetor assembly (ABO; includes PD104-1, QD548, RF170A, RF1010, RG15, XK38; includes carburetor; obsolete); LZ26A10 Stromberg carburetor assembly (AKO; includes PD104-1, QD548, RF170A, RF1010, RG15, XK38; includes carburetor; obsolete).

## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines




Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression heads and special fittings in carburetor. Do not use this fuel in a standard engine.

The engines must be started on gasoline, usually one carburetor float chamber full of gasoline is sufficient for warming up. The engine is furnished with a priming cup as well as a drain cock in the carburetor float chamber.

Before starting the engine, fill tank with fuel and engine crankcase with a good grade of lubricating oil. Close the valve below the tank and open the carburetor drain cock so any fuel which might be in the carburetor float chamber will be drained out. Next, close the float chamber drain cock and fill the carburetor float chamber with gasoline by means of the priming cup. After the float chamber is filled and the priming cup closed, the fuel shut-off valve below the tank can be opened.

With the magneto switch in the running position, the high speed needle valve below the carburetor adjusted to about one and one half turns open, the carburetor choke lever can be closed and the engine cranked.

After the engine starts and warms up, adjust the carburetor high speed needle for smoothest operation.

With No. 1 fuel oil or kerosene there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

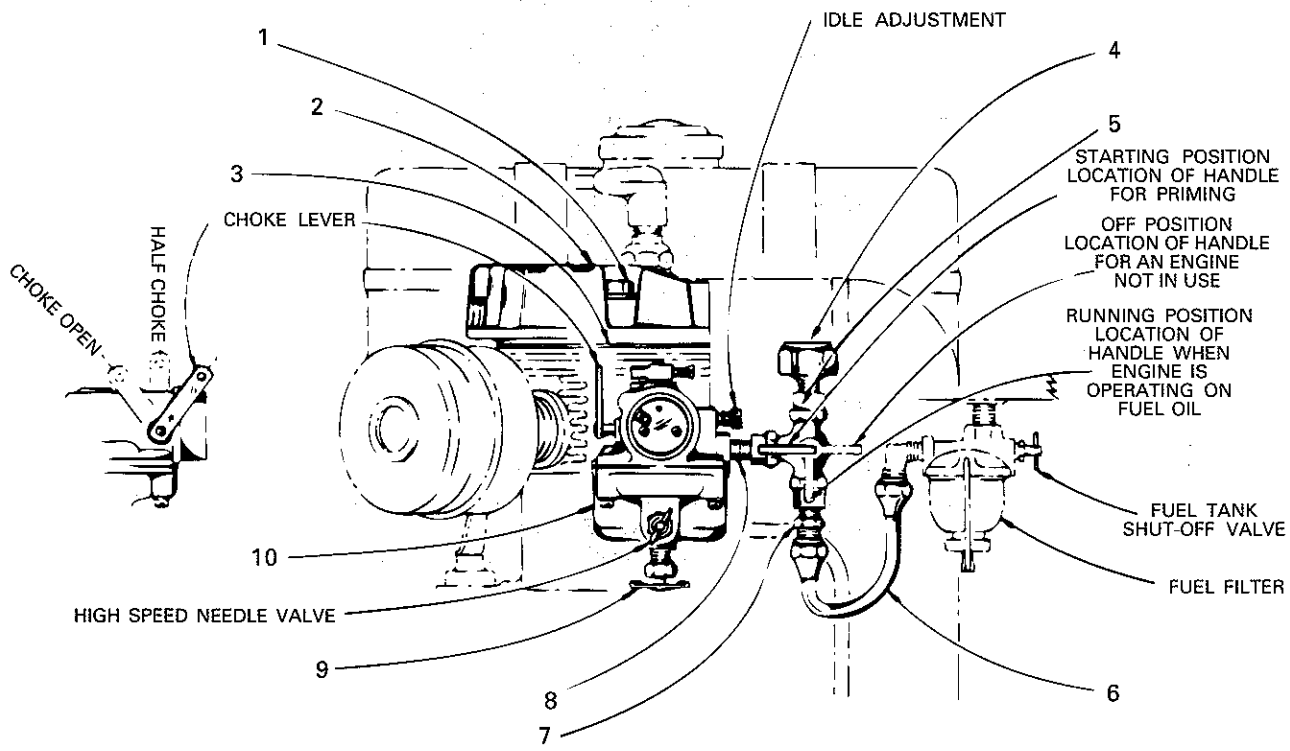
## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODELS AEHO, AFHO, AGHO, AHHO (see pg. 3)**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB85 | Cylinder head (AEHO) (obsolete) | 1 |
| — | AB82B | Cylinder head (AFHO) (obsolete) | 1 |
| — | AB84A | Cylinder head for kerosene burning engine (AFHO) (obsolete) | 1 |
| — | AB84-1 | Cylinder head (AGHO) (obsolete) | 1 |
| — | AB84 | Cylinder head (AHHO) (obsolete) | 1 |
| 1 | RF269 | Straight fitting | 1 |
| 2 | RF794 | Pipe nipple, 1/8" 3/4" long | 2 |
| 3 | RG12 | Priming cup (NLA) | 1 |
| 4 | XK63 | Tee, 1/8" | 1 |
| 5 | PE44 | Lock washer, no. 10 | 1 |
| 6 | PH267-1 | Felt seal | 1 |
| 7 | XK44 | Elbow, 1/8" | 1 |
| 8 | RG43 | Drain cock | 1 |

## L51FS1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL ACNO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | XD21 | Screw, 5/16"-18 thread x 1-1/2" long | 3 |
| 2 | AB99N | Cylinder head | 1 |
| 3 | QD604A | Gasket | 1 |
| 4 | RG44 | Priming cup (replaces RG4A) | 1 |
| 5 | RG40A | Three way valve (replaces XK63) | 1 |
| 6 | RM575 | Fuel line (obsolete) | 1 |
| 7 | RF269 | Straight fitting | 1 |
| 8 | RF794 | Pipe nipple, 3/4" long | 1 |
| 9 | RG43 | Drain cock (replaces RG15) | 1 |
| 10 | L51FS1 | Zenith carburetor | 1 |

## L51FS1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special fittings in standard "Zenith" carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve, in the fuel filter at bottom of fuel tank, is closed.
3. Drain carburetor float chamber of fuel oil by opening drain cock at bottom of bowl. Close drain cock before priming.
4. To prime engine, turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing toward carburetor.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever toward air cleaner, and turn engine over once. Open choke half-way, turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully by pushing choke lever toward cylinder block. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve in the fuel filter below the fuel tank, and then turning handle on 3 way valve to "running position"; handle pointing downward.
10. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve in fuel filter at bottom of fuel tank, and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

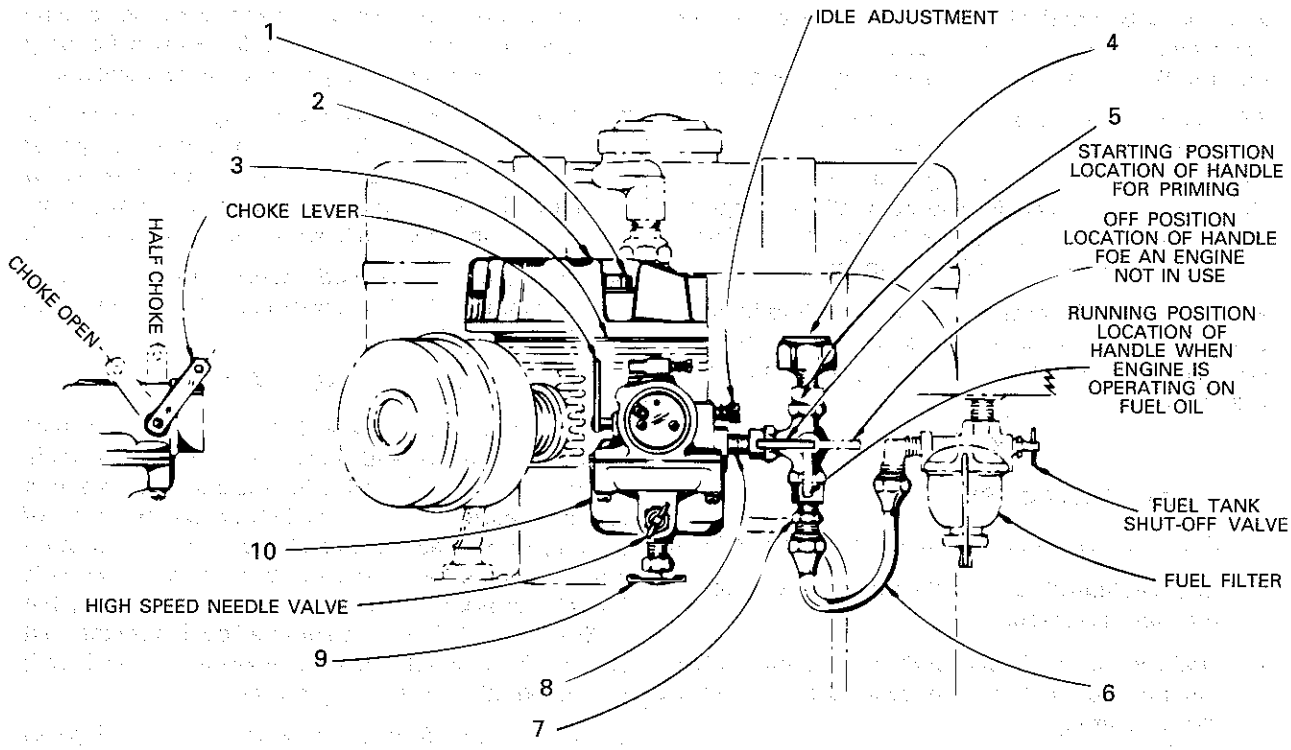
#### CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 1-1/2 turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L51ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL BKNO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | XD21 | Screw, 5/16"-18 thread x 1-1/2" long | 3 |
| 2 | AB99M | Cylinder head | 1 |
| 3 | QD604A | Gasket | 1 |
| 4 | RG44 | Priming cup (replaces RG4A) | 1 |
| 5 | RG40A | Three way valve (replaces XK63) | 1 |
| 6 | RM575 | Fuel line (obsolete) | 1 |
| 7 | RF269 | Straight fitting | 1 |
| 8 | RF794 | Pipe nipple, 3/4" long | 1 |
| 9 | RG43 | Drain cock (replaces RG15) | 1 |
| 10 | L51ES1 | Zenith carburetor | 1 |

## L51ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special fittings in standard "Zenith" carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve, in the fuel filter at bottom of fuel tank, is closed.
3. Drain carburetor float chamber of fuel oil by opening drain cock at bottom of bowl. Close drain cock before priming.
4. To prime engine, turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing toward carburetor.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever toward air cleaner, and turn engine over once. Open choke half-way, turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully by pushing choke lever toward cylinder block. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve in the fuel filter below the fuel tank, and then turning handle on 3 way valve to "running position"; handle pointing downward.
10. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve in fuel filter at bottom of fuel tank, and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

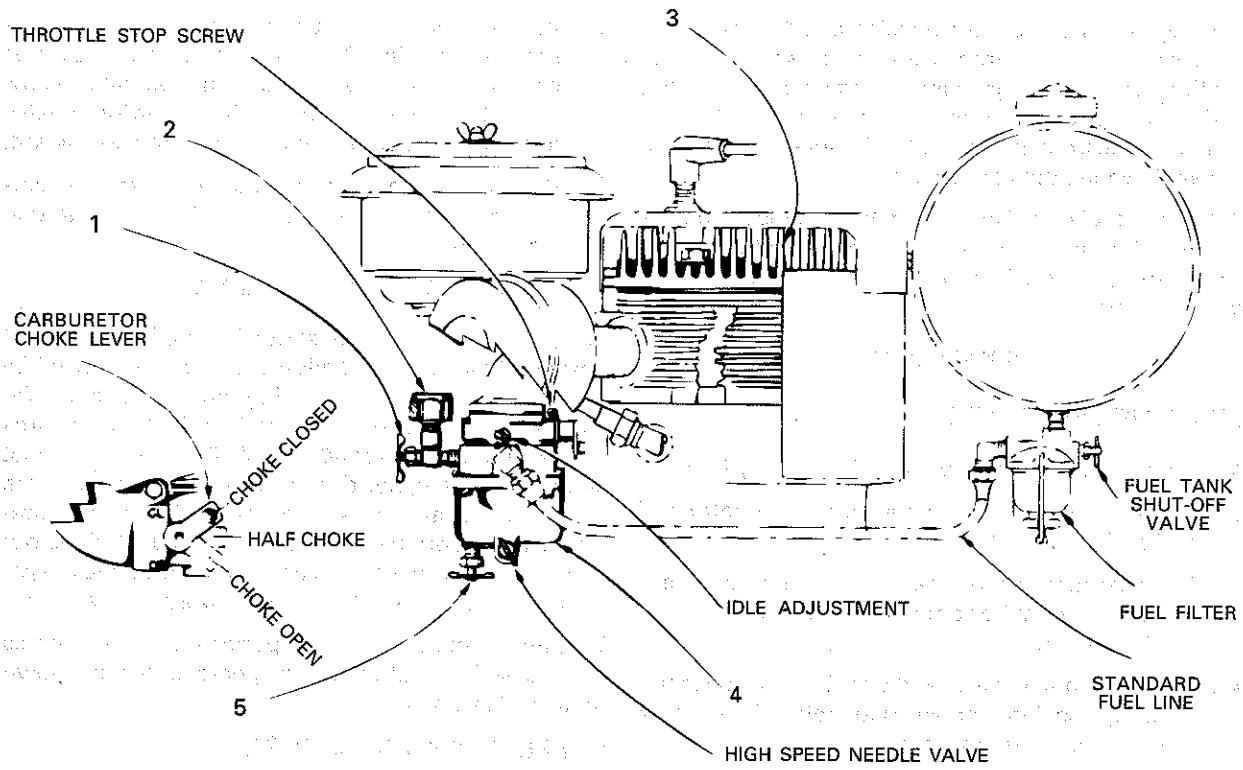
#### CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 1-1/2 turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL AENLO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | RG45 | Shut-off valve (replaces RG40A, RM391) | 1 |
| 2 | RG44 | Priming cup (replaces RG12) | 1 |
| 3 | AB101A | Cylinder head | 1 |
| 4 | — — — | Carburetor | 1 |
| 5 | RG43 | Drain cock (replaces RG15) | 1 |

## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special fittings in carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve, in the fuel filter at bottom of fuel tank, is closed.
3. Drain carburetor float chamber of fuel oil by opening drain cock (Ref. 5) at bottom of bowl. Close drain cock before priming.
4. Open shut-off valve (Ref. 1) and fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup (Ref. 2).
5. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
6. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
7. Close choke on carburetor, by pushing choke lever upward, and turn engine over once. Open choke half-way, turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully by pushing lever down. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
8. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by opening the shut-off valve in the fuel filter below the fuel tank. Close priming cup shut-off valve (Ref. 1).
9. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve in fuel filter at bottom of fuel tank, and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

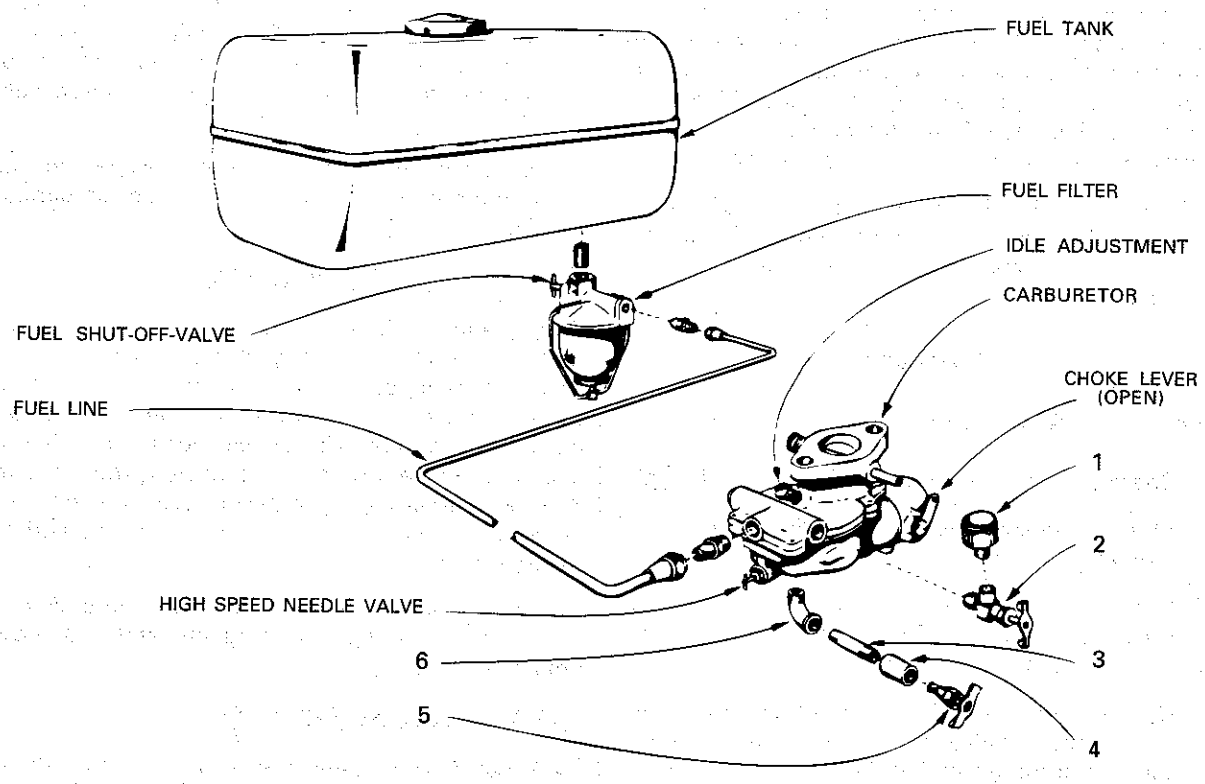
#### CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 1-1/2 turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL AGNOD**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB102B | Cylinder head | 1 |
| — | — — — | Carburetor | 1 |
| 1 | RG44 | Priming cup (replaces RG12) | 1 |
| 2 | RG45 | Shut-off valve | 1 |
| 3 | RF903 | Pipe nipple, 1/8" x 1-1/2" long | 1 |
| 4 | RF170A | Pipe coupling, 1/8" | 1 |
| 5 | RG43 | Drain cock (replaces RG15) | 1 |
| 6 | XK38 | Street ell, 90° x 1/8" | 1 |

## Standard Carburetor No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special fittings in carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve, in the fuel filter at bottom of fuel tank, is closed.
3. Drain carburetor float chamber of fuel oil by opening drain cock (Ref. 5) at bottom of bowl. Close drain cock before priming.
4. Open shut-off valve (Ref. 2) and fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup (Ref. 1).
5. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
6. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
7. Close choke on carburetor, by pushing choke lever down, and turn engine over thru one compression stroke. Open choke half-way, turn engine over to compression and pull briskly on starting crank, in a clockwise direction. Repeat if necessary.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully by pushing lever up. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
8. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by opening the shut-off valve in the fuel filter below the fuel tank. Close priming cup shut-off valve (Ref. 2).
9. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve in fuel filter at bottom of fuel tank, and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

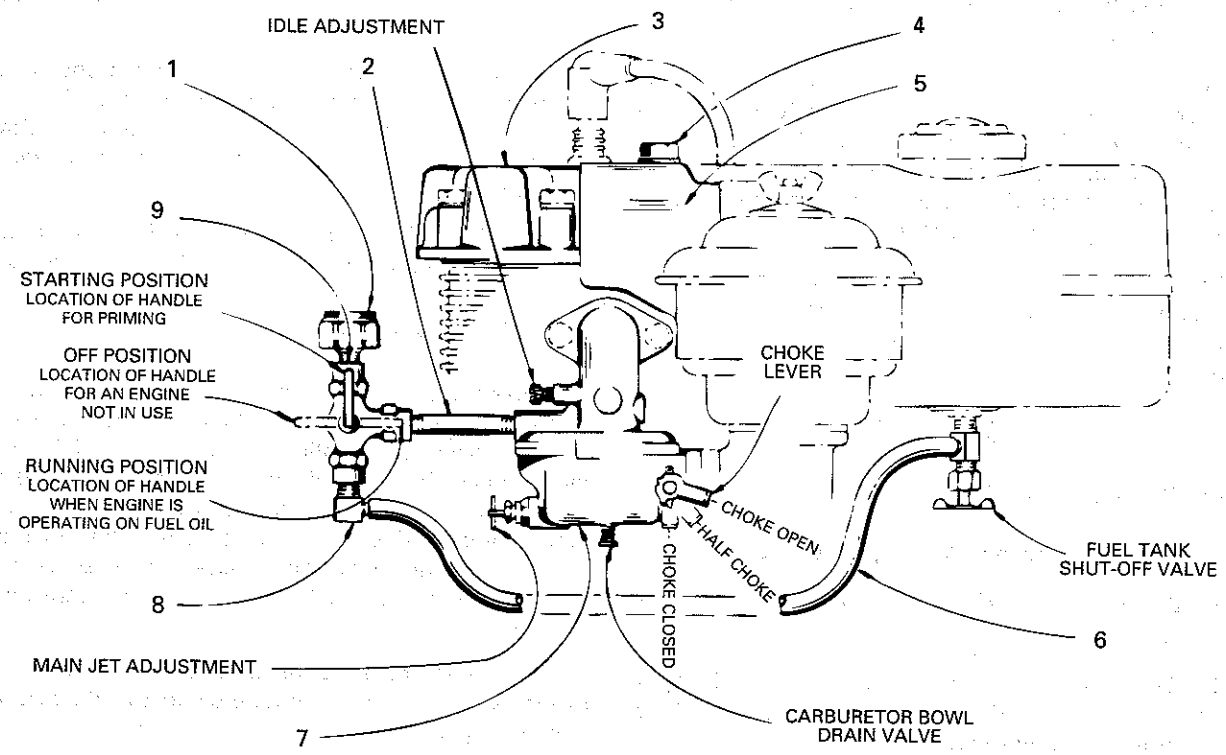
#### CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 1-1/4 turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L80JS1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL S7DO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | RG44 | Priming cup | 1 |
| 2 | RF1093 | Pipe nipple 2-1/4" long | 1 |
| 3 | AB108F | Cylinder head (obsolete) | 1 |
| 4 | XD162 | Cap screw, 5/16"-18 thread x 2-1/2" long | 1 |
| 5 | SE272D | Cylinder head cover (NLA) | 1 |
| 6 | LL178-24 | Fuel line | 1 |
| 7 | L80JS1 | Carburetor (obsolete) | 1 |
| 8 | RF1439 | Elbow | 1 |
| 9 | RG40A | Three way valve | 1 |
| — | SD266 | Instruction tag (not illustrated) (NLA) | 1 |

## L80JS1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve at bottom of fuel tank is closed.
3. Drain carburetor float chamber of fuel oil by depressing valve at bottom of bowl.
4. Turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing upward.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The main jet adjustment on the carburetor is made when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever down, and turn engine over once. Open choke halfway, turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve below the fuel tank and then turning handle on 3 way valve to "running position"; handle pointing toward carburetor.
10. Regulate main jet adjustment on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve at bottom of fuel tank and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

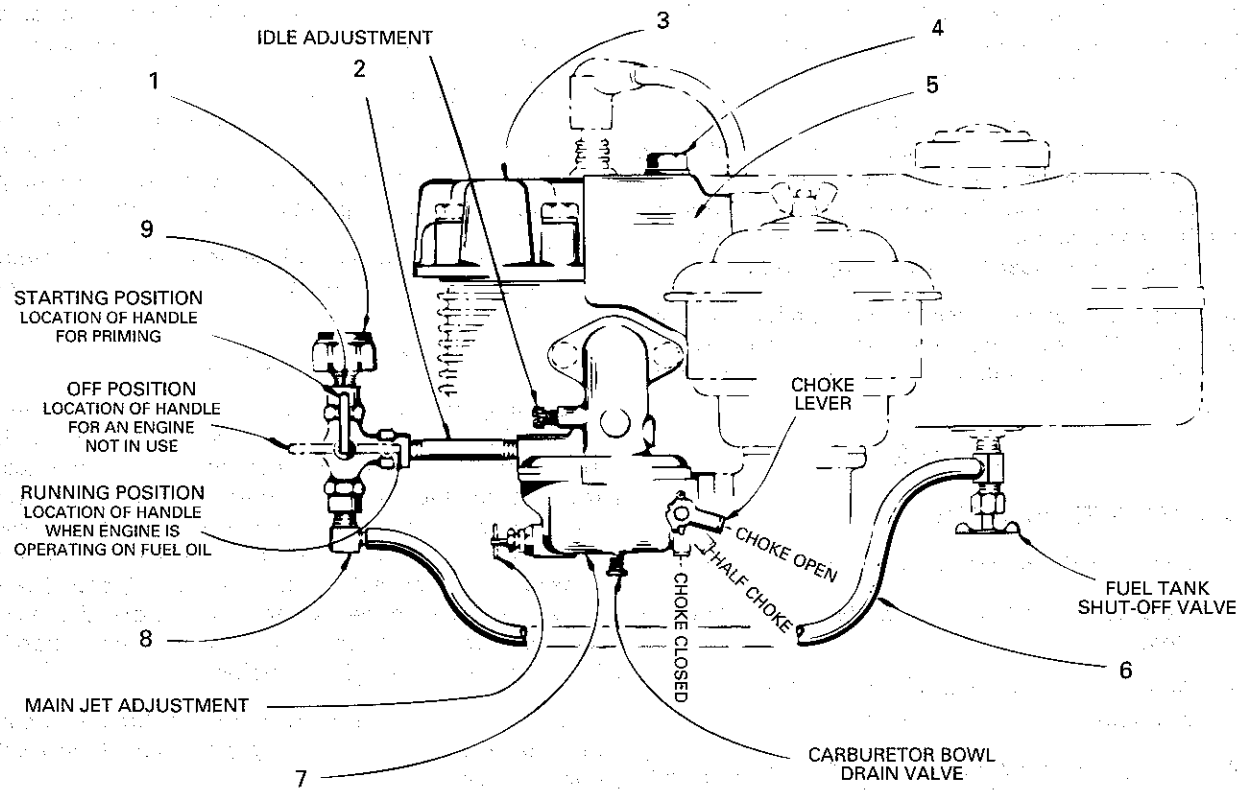
#### CARBURETOR–ADJUSTMENT

Turn main jet adjustment in, (clockwise) until it seats. Then turn out, (counter-clockwise) 2 full turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L80QS1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL S8DO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | RG44 | Priming cup | 1 |
| 2 | RF794 | Pipe nipple, 3/4" long | 1 |
| 3 | AB112C | Cylinder head (obsolete) | 1 |
| 4 | XD22 | Cap screw, 5/16"-18 thread x 1-3/4" long | 5 |
| 5 | — — — | Cylinder head cover | 1 |
| 6 | LL178-16 | Fuel line | 1 |
| 7 | L80QS1 | Carburetor (obsolete) | 1 |
| 8 | RF1439 | Elbow | 1 |
| 9 | RG40A | Three way valve | 1 |
| — | SD275 | Instruction tag (not illustrated) (NLA) | 1 |

## L80QS1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full of gasoline is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve at bottom of fuel tank is closed.
3. Drain carburetor float chamber of fuel oil by depressing valve at bottom of bowl.
4. Turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing upward.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The main jet adjustment on the carburetor is made when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever down, and turn engine over once. Open choke halfway, turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts, open choke fully. Less choking is necessary in warmer weather or when the engine is warm, than when it is cold. Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve below the fuel tank and then turning handle on 3 way valve to "running position"; handle pointing toward carburetor.
10. Regulate main jet adjustment on carburetor for smoothest operation. See "Carburetor–Adjustment".

### STOPPING ENGINE

To stop engine, close the shut-off valve at bottom of fuel tank and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

To shut engine off for short periods of time, depress ground switch button on magneto and hold down until engine stops.

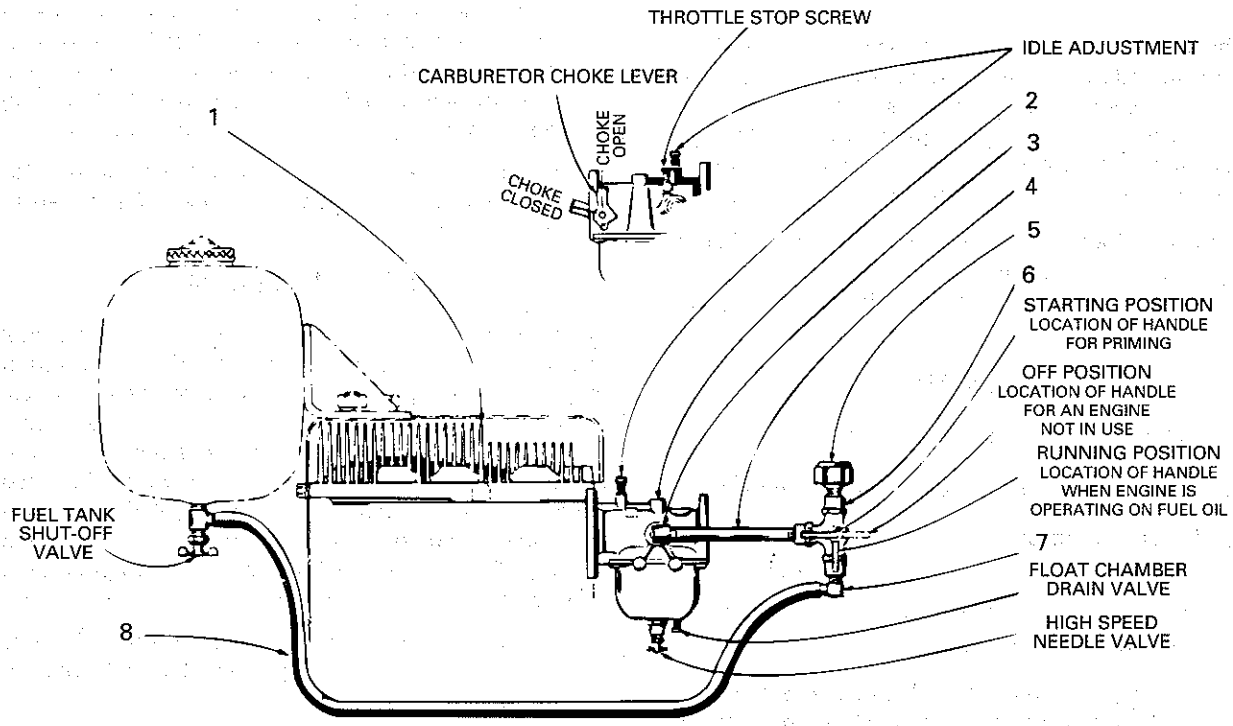
#### CARBURETOR–ADJUSTMENT

Turn main jet adjustment in, (clockwise) until it seats. Then turn out, (counter-clockwise) 2 full turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L86ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL S10DO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | AB115-1 | Cylinder head (obsolete) | 1 |
| 2 | L86ES1 | Carburetor (Zenith 13137) | 1 |
| 3 | RF996 | Elbow | 1 |
| 4 | RF904 | Nipple, 4" long x 1/8" | 1 |
| 5 | RG44 | Priming cup | 1 |
| 6 | RG40A | Three-way valve | 1 |
| 7 | RF1439 | Elbow | 1 |
| 8 | LL178-24 | Fuel line | 1 |
| — | SD292 | Instruction tag (not illustrated) (NLA) | 1 |

## L86ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve at bottom of fuel tank is closed.
3. Drain carburetor float chamber of fuel oil by depressing valve at bottom of bowl.
4. To prime engine, turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing toward carburetor.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever down (lever in horizontal position). Turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   Above 30°F, it may be necessary to open the choke halfway, if engine does not start after two or three pulls.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts open choke fully (push lever up). Less choking is necessary in warmer weather or when the engine is warm, than when it is cold.

   Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve below the fuel tank, and then turning handle on 3 way valve to "running position"; handle pointing downward.
10. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

## L86ES1 No. 1 Fuel Oil Or Kerosene Burning Engines

### STOPPING ENGINE

To stop engine, close the shut-off valve at bottom of fuel tank and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

To shut engine off for short periods of time, depress ground switch at breaker box and hold down until engine stops, or when starting motor is furnished "push in" ignition switch to stop engine.

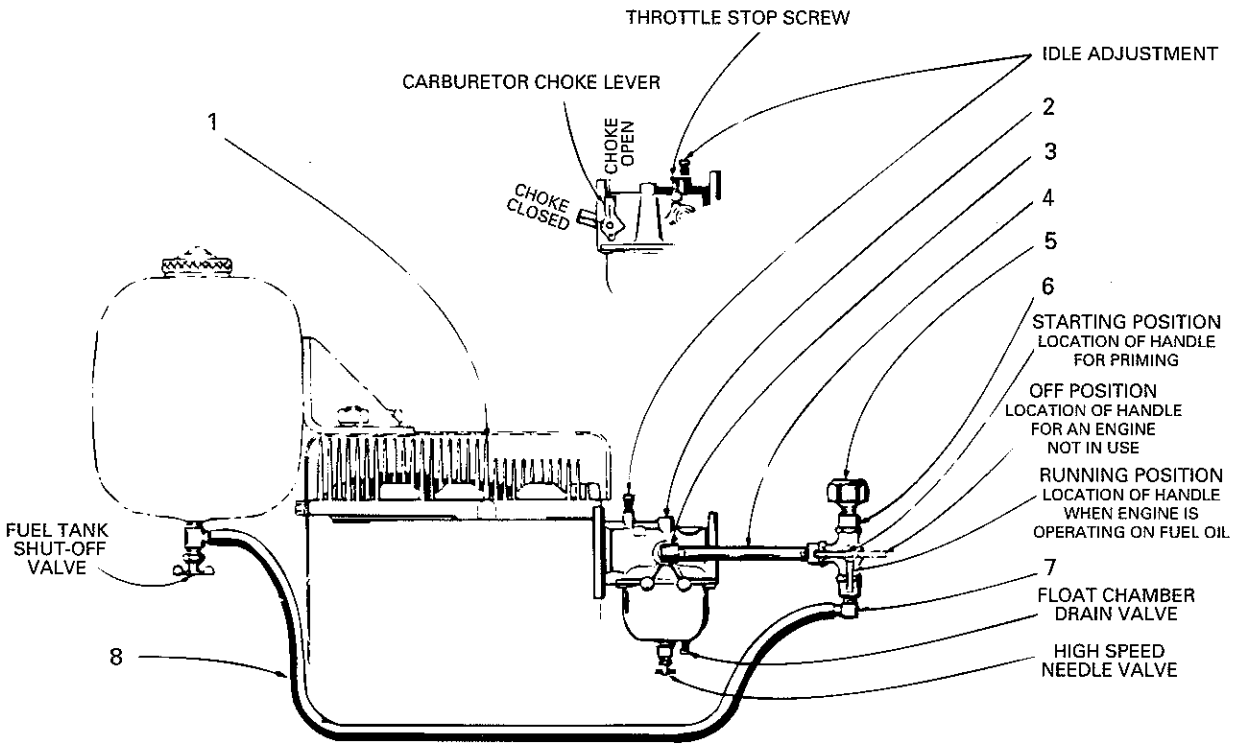
### CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 2 full turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L86FS1 No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL S12DO**




| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| 1 | AB115 | Cylinder head | 1 |
| 2 | L86FS1 | Carburetor (Zenith 13138) | 1 |
| 3 | RF996 | Elbow | 1 |
| 4 | RF904 | Nipple, 4" long x 1/8" | 1 |
| 5 | RG44 | Priming cup | 1 |
| 6 | RG40A | Three-way valve | 1 |
| 7 | RF1439 | Elbow | 1 |
| 8 | LL178-24 | Fuel line | 1 |
| — | SD292 | Instruction tag (not illustrated) (NLA) | 1 |

## L86FS1 No. 1 Fuel Oil Or Kerosene Burning Engines

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with a low compression cylinder head and special carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline. A priming cup is furnished for this purpose, and usually one carburetor float bowl full is sufficient for starting and warm up. Use a good quality of "regular" grade gasoline, free from dirt and water. Be sure "priming cup is clean" when adding gasoline.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

### STARTING

#### STARTING PROCEDURE

1. Check crankcase oil level and fuel supply in tank.
2. Be sure shut-off valve at bottom of fuel tank is closed.
3. Drain carburetor float chamber of fuel oil by depressing valve at bottom of bowl.
4. To prime engine, turn handle on 3 way valve to the "starting position" shown in illustration. The handle must be pointing toward carburetor.
5. Fill carburetor bowl with a good quality of "regular" grade gasoline thru the priming cup.
6. The high speed needle valve on the carburetor is adjusted when engine is tested at the factory. Refer to "Carburetor–Adjustment" for further information.
7. Disengage clutch if furnished, and set variable speed throttle control about 1/2 open.
8. Close choke on carburetor by pushing choke lever down (lever in horizontal position). Turn engine over to compression with starter sheave and then turn back one-half turn. Wind rope fully on sheave and pull briskly to turn crankshaft over.

   Above 30°F, it may be necessary to open the choke halfway, if engine does not start after two or three pulls.

   With starting motor, pull out ignition switch (tag reads "To Stop Push In"), and depress starter button.

   After engine starts open choke fully (push lever up). Less choking is necessary in warmer weather or when the engine is warm, than when it is cold.

   Should flooding occur, open choke fully and continue cranking.
9. After engine starts, let it warm up a couple of minutes on gasoline. Then switch to fuel oil by first opening the shut-off valve below the fuel tank, and then turning handle on 3 way valve to "running position"; handle pointing downward.
10. Regulate high speed needle valve on carburetor for smoothest operation. See "Carburetor–Adjustment".

## STOPPING ENGINE

To stop engine, close the shut-off valve at bottom of fuel tank and allow the engine to run at idle speed until it stops. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster than by just stopping the engine, due to air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, that ordinarily would have to be drained out before the next starting. Turn handle on 3 way valve to "off position"; handle pointing away from engine.

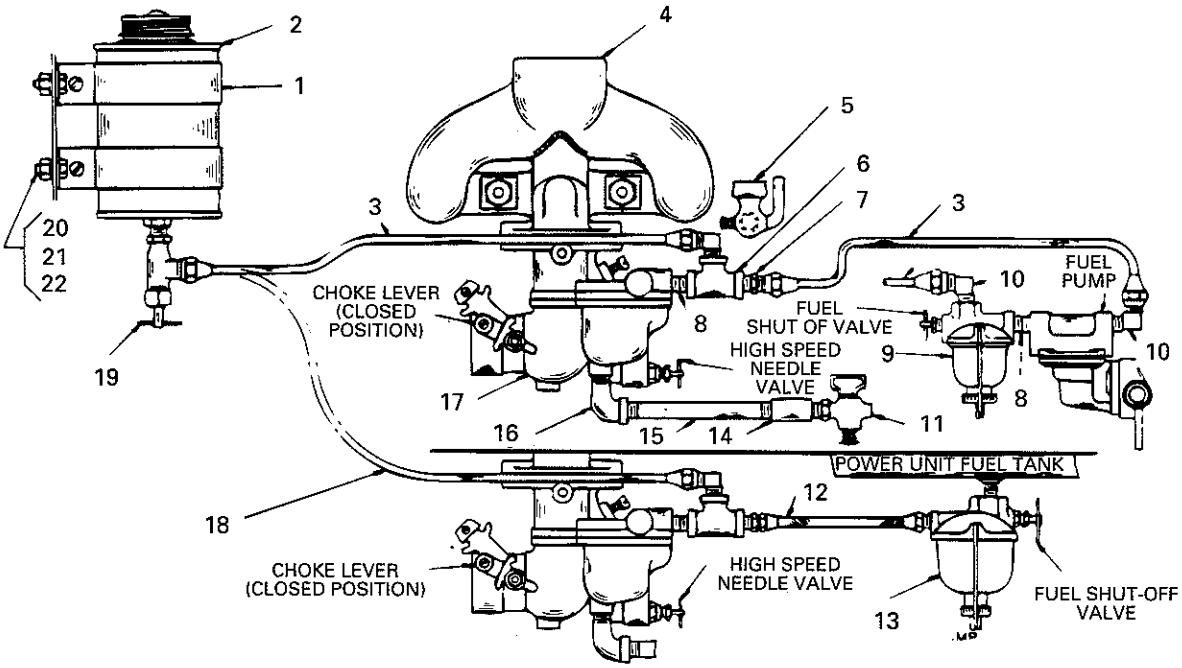
To shut engine off for short periods of time, depress ground switch at breaker box and hold down until engine stops, or when starting motor is furnished "push in" ignition switch to stop engine.

## CARBURETOR–ADJUSTMENT

Turn high speed needle valve in, (clockwise) until it seats. Then turn out, (counter-clockwise) 2 full turns. After the engine is started and warmed up for several minutes, and running at normal operating speed on fuel oil, the needle valve should be readjusted for smooth operation. This adjustment need only be made the first time the engine is started. After that, the needle should be left in that position. In cold weather, starting may be facilitated by opening the needle valve slightly more, then readjusted to normal running position after engine is started.

The correct amount of throttle plate opening for the proper low idle speed is obtained by means of the throttle stop screw. However, this is set at the factory so that no further adjustment is necessary. The idle adjustment is for smooth low speed operation and this adjustment, if necessary, must be made with the carburetor throttle lever closed.

## L48M, L48P, L48Q, L63JS1 No. 1 Fuel Oil Or Kerosene Burning Engines




Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression cylinder heads and special fittings in carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline, usually several carburetor float chambers full of gasoline is sufficient for warming up. For this purpose a small gasoline priming tank (Ref. 2) or priming cup (Ref. 5) and a carburetor float chamber drain cock (Ref. 11) are furnished.

Before starting the engine, close all shut-off valves and fill the large tank with fuel oil, the small priming tank with gasoline and engine crankcase with a good grade of lubricating oil. On power units the fuel oil shut-off valve is part of the fuel strainer (Ref. 13), gravity feed, underneath the large fuel tank. On open engines or power units with fuel tank underslung having a fuel pump the shut-off valve is part of the fuel strainer (Ref. 9) mounted to the carburetor. Check again to be sure these valves are closed, then open the float chamber drain cock (Ref. 11) and after all the fuel oil or kerosene from previous operation has been drained, close this cock, and fill the carburetor float chamber with gasoline by means of the priming cup (Ref. 5) on open engines or by opening the shut-off valve (Ref. 19) below the gasoline priming tank on power units. With the magneto switch in the running position, the carburetor choke can be closed and the engine cranked.

After the engine starts let it operate on gasoline from two to three minutes then switch over to No. 1 fuel oil or kerosene by first closing the gasoline shut-off valve (Ref. 19) and immediately opening the fuel shut-off valve in the strainer. The amount of warm up will depend on the grade of fuel. Adjust the carburetor high speed needle valve for smoothest operation.

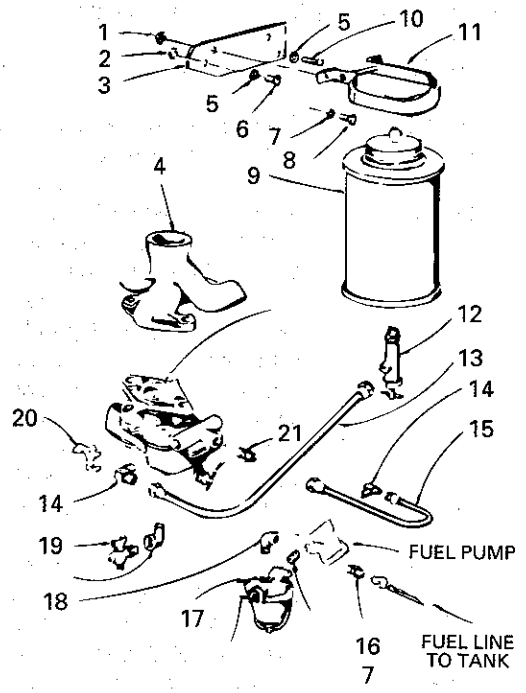
With No. 1 fuel oil or kerosene there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

## L48M, L48P, L48Q, L63JS1 No. 1 Fuel Oil Or Kerosene Burning Engines

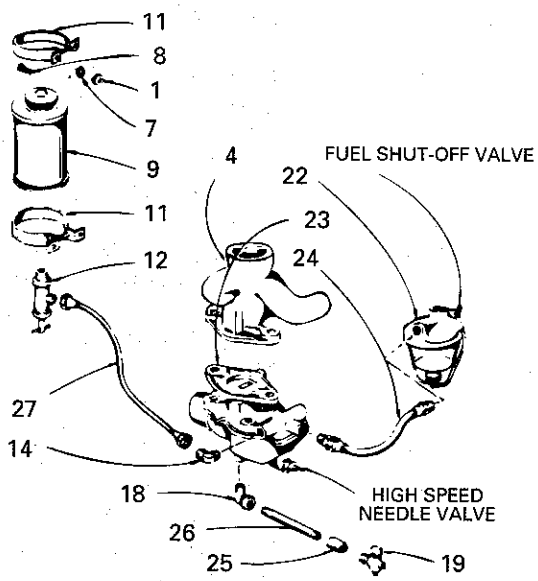
**USE WITH MODELS TEO, TFO 2-CYLINDER OPEN ENGINE AND POWER UNIT (see pg. 23)**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB100D | Cylinder head (TEO) | 1 |
| — | AB87 | Cylinder head (TFO) (obsolete) | 1 |
| — | XD21 | Screw, 5/16"-18 thread x 1-1/2" long (TFO) | 4 |
| 1 | PG161 | Strap | 2 |
| 2 | WE94 | Gasoline priming tank (includes QD673) (NLA) | 1 |
| 3 | RM849 | Fuel line, 1/4" tubing with nuts, 9-1/2" long | 2 |
| 4 | LD247A | Manifold assembly (obsolete) | 1 |
| 5 | RG12 | Priming cup (obsolete) | 1 |
| 6 | XK63 | Pipe tee, 1/8" | 1 |
| 7 | RF269 | Straight adapter | 1 |
| 8 | RF794 | Pipe nipple, 1/8" x 3/4" long | 2 |
| 9 | LP43 | Fuel strainer, Tillotson no. OW480 | 1 |
| 10 | RF1225 | Elbow | 3 |
| 11 | RG43 | Drain cock | 1 |
| 12 | RM1049D | Flexible fuel line, 9-1/2" long | 1 |
| 13 | LP19 | Fuel strainer, Tillotson OW418 | 1 |
| 14 | RF170A | Pipe coupling, 1/8" | 1 |
| 15 | RF1209 | Pipe nipple, 1/8" x 4-1/2" long | 1 |
| 16 | XK38 | Street ell, 1/8" x 90° | 1 |
| 17 | L63JS1 | Carburetor, Zenith model 161-7 (TFO power unit) | 1 |
| — | L48M | Carburetor, Zenith model 161-7 (TFO open engine) (obsolete) | 1 |
| — | L48P | Carburetor, Zenith model 161-7 (TEO power unit) (obsolete) | 1 |
| — | L48Q | Carburetor, Zenith model 161-7 (TEO open engine) (obsolete) | 1 |
| 18 | RM900 | Fuel line, 1/4" tubing with nuts, 21-1/2" long | 1 |
| 19 | RG22 | Gasoline shut-off valve | 1 |
| 20 | PD77 | Nut, 1/4"-20 thread | 4 |
| 21 | PE3 | Lock washer, 1/4" | 4 |
| 22 | XD5 | Screw, 1/4"-20 thread x 5/8" long | 4 |

## L63J No. 1 Fuel Oil Or Kerosene Burning Engines




**OPEN ENGINE**




**POWER UNIT**

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression cylinder heads and a special manifold and carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline, usually several carburetor float chambers full of gasoline is sufficient for warming up. For this purpose a small gasoline priming tank (Ref. 9) or priming cup (Ref. 20) and a carburetor float chamber drain cock (Ref. 19) are furnished.

Before starting the engine, close all shut-off valves and fill the large tank with fuel oil, the small priming tank with gasoline and engine crankcase with a good grade of lubricating oil. On power units the fuel oil shut-off valve is part of the fuel strainer (Ref. 22), gravity feed, underneath the large fuel tank. On open engines or power units with fuel tank underslung having a fuel pump, the shut-off valve is part of the fuel strainer (Ref. 17) mounted to the fuel pump. Check again to be sure these valves are closed, then open the float chamber drain cock (Ref. 19) and after all the fuel oil or kerosene from previous operation has been drained, close this cock, and fill the carburetor float chamber with gasoline by means of the priming cup (Ref. 20) or by opening the shut-off valve (Ref. 12) below the gasoline priming tank.

With the ignition switch in the running position, close the choke on the carburetor and start the engine. After the engine starts, let it operate on gasoline from two to three minutes then switch over to No. 1 fuel oil or kerosene by first closing the gasoline shut-off valve (Ref. 12) and immediately opening the fuel shut-off valve in the strainer. After the engine warms up, regulate the carburetor main jet adjustment for smoothest operation.

To stop engine, close the fuel filter shut-off valve and allow the engine to run at idle speed until it stops. Then, be sure ignition switch is shut off. By allowing the engine to idle for a few minutes, the external and internal temperatures of the engine will reduce much faster, than by just stopping the engine, due to the air circulation from the flywheel. This also uses up the fuel oil in the carburetor bowl, since it would have to be drained out before the next starting.

With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

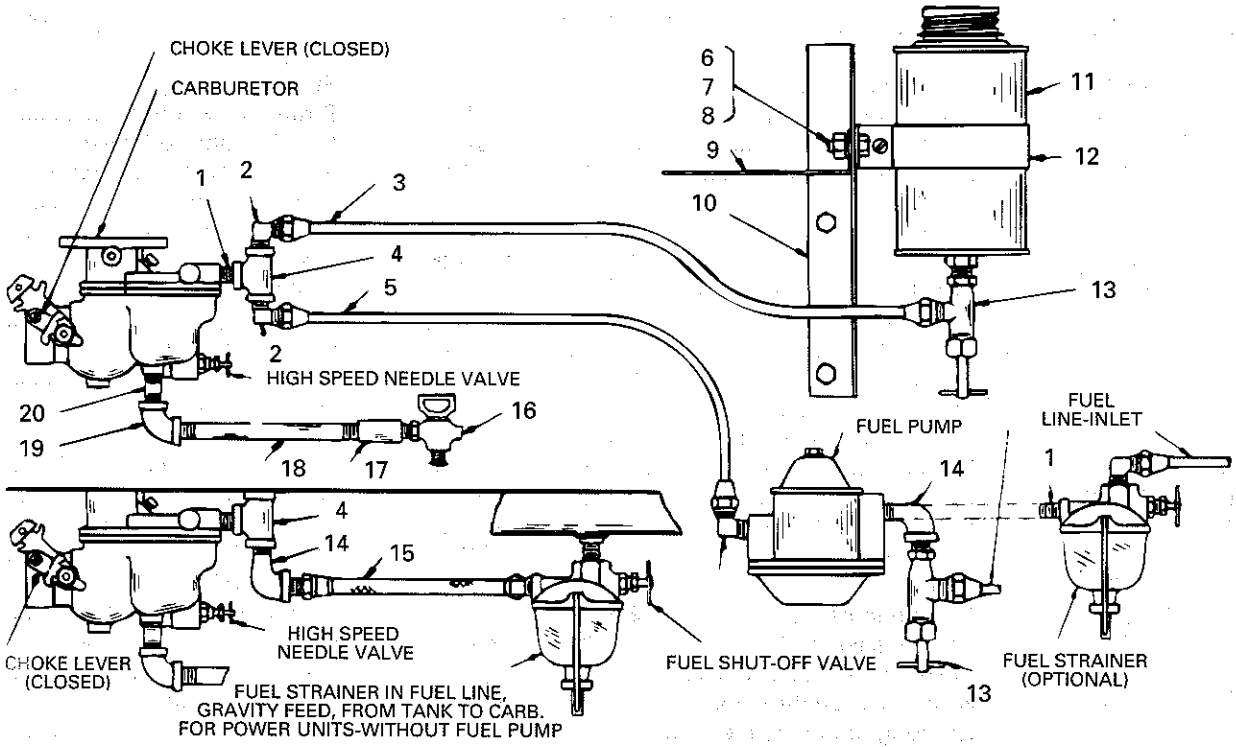
## L63J No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL THO 2-CYLINDER OPEN ENGINE AND POWER UNIT (see pg. 25)**

NOTE: Parts are identical for both open engine and power unit, except where noted.

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB100D | Cylinder head | 1 |
| — | XD20 | Screw, 5/16"-18 thread x 1-3/8" long | 9 |
| — | XD21 | Screw, 5/16"-18 thread x 1-1/2" long | 6 |
| — | XD22 | Screw, 5/16"-18 thread x 1-3/4" long | 2 |
| 1 | PD77 | Nut, 1/4"-20 thread (open engine) | 2 |
| — | PD77 | Nut, 1/4"-20 thread (power unit) | 4 |
| 2 | HF41 | Spacer (obsolete) | 1 |
| 3 | PG622 | Bracket (obsolete) | 1 |
| 4 | LD247B | Manifold assembly | 1 |
| 5 | PH196 | Spacer | 2 |
| 6 | XA35 | Screw, 1/4"-20 thread x 5/8" long | 1 |
| 7 | PE3 | Lock washer, 1/4" (open engine) | 2 |
| — | PE3 | Lock washer, 1/4" (power unit) | 4 |
| 8 | XD5 | Screw, 1/4"-20 thread x 5/8" long (open engine) | 2 |
| — | XD5 | Screw, 1/4"-20 thread x 5/8" long (power unit) | 4 |
| 9 | WE94 | Gasoline priming tank (includes QD673) (NLA) | 1 |
| 10 | XA39 | Screw, 1/4"-20 thread x 1-1/4" long | 1 |
| 11 | PG161 | Strap (open engine) | 1 |
| — | PG161 | Strap (power unit) | 2 |
| 12 | RG22 | Gasoline shut-off valve | 1 |
| 13 | RM392 | Fuel line, 1/4" tubing with nuts, 11" long | 2 |
| 14 | RF1225 | Elbow (open engine) | 2 |
| — | RF1225 | Elbow (power unit) | 1 |
| 15 | RM1122 | Fuel line, 1/4" tubing, 6-1/2" long | 1 |
| 16 | RF794 | Pipe nipple, 1/8" x 3/4" long | 1 |
| 17 | LP43 | Fuel strainer, Tillotson no. OW480T | 1 |
| 18 | XK38A | Street ell, 1/8" x 90° | 2 |
| 19 | RG43 | Drain cock | 1 |
| 20 | RG12 | Priming cup (obsolete) | 1 |
| 21 | RF269 | Straight fitting | 2 |
| 22 | LP19 | Fuel strainer, Tillotson no. OW418 | 1 |
| 23 | L63J | Carburetor, Zenith model 68-7, no. 12239 | 1 |
| 24 | RM1049D | Flexible fuel line, 9-1/2" long | 1 |
| 25 | RF170A | Pipe coupling, 1/8" | 1 |
| 26 | RF1209 | Pipe nipple, 1/8" x 4-1/2" long | 1 |
| 27 | RM450 | Fuel line, 1/4" tubing with nuts, 20" long | 1 |

## L48-1, L48-3 No. 1 Fuel Oil Or Kerosene Burning Engines




Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression cylinder heads and special fittings in carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline, usually several carburetor float chambers full of gasoline is sufficient for warming up. For this purpose a small gasoline priming tank (Ref. 11) and a carburetor float chamber drain cock (Ref. 16) are furnished.

Before starting the engine, close all shut-off valves and fill the large tank with fuel oil, the small priming tank with gasoline and engine crankcase with a good grade of lubricating oil. On power units the fuel oil shut-off valve is part of the fuel strainer, gravity feed, underneath the large fuel tank. On open engines or power units with fuel tank underslung having a fuel pump the shut-off valve is at the inlet side of the fuel pump. Check again to be sure this valve is closed, then open the float chamber drain cock and after all the fuel oil or kerosene from previous operation has been drained, close this cock, and fill the carburetor float chamber with gasoline by opening the shut-off valve below the gasoline priming tank. With the magneto switch in the running position, the carburetor choke can be closed and the engine cranked.

After the engine starts, let it operate on gasoline from two to three minutes then switch over to No. 1 fuel oil or kerosene by first closing the gasoline shut-off valve and immediately opening the fuel oil valve. The amount of warm up will depend on the grade of oil.

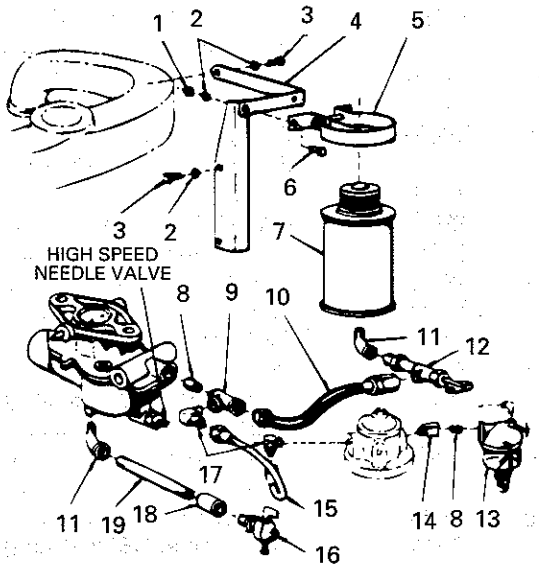
With No. 1 fuel oil or kerosene, there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring requirements.

## L48-1, L48-3 No. 1 Fuel Oil Or Kerosene Burning Engines

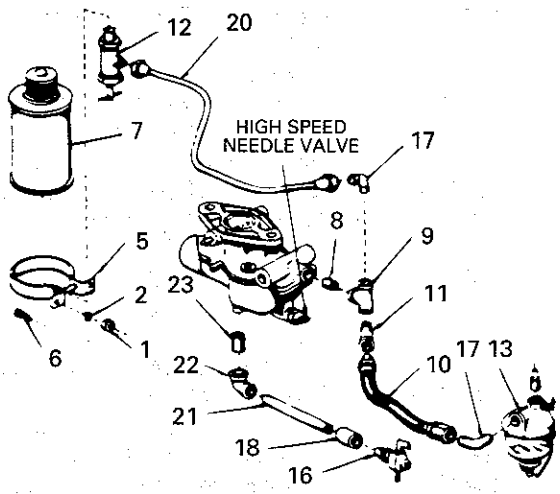
**USE WITH MODELS VEO4, VFO4 OPEN ENGINE AND POWER UNIT (see pg. 27)**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB100D | Cylinder head (VEO4) | 2 |
| — | AB87 | Cylinder head (VFO4) (obsolete) | 2 |
| — | L48-1 | Carburetor, Zenith model 161-7, no. S717 (VEO4) (obsolete) | 1 |
| — | L48-3 | Carburetor, Zenith model 161-7, no. S732 (VFO4) (obsolete) | 1 |
| — | LD227E | Manifold (VEO4, VFO4) | 1 |
| — | XD21 | Screw, 5/16"-18 thread x 1-1/2" long (VFO4) | 8 |
| 1 | RF794 | Pipe nipple, 1/8" x 3/4" long | 2 |
| 2 | RF1225 | Elbow | 3 |
| 3 | RM1150 | Fuel line, 18-1/4" long | 1 |
| — | RM1049A | Flexible fuel line, 6-5/8" long | 1 |
| 4 | XK63 | Pipe tee, 1/8" x 1/8" x 1/8" | 1 |
| 5 | RM850-1 | Fuel line, 8-1/4" long | 1 |
| 6 | PD77 | Nut, 1/4"-20 thread | 2 |
| 7 | PE3 | Lock washer, 1/4" | 2 |
| 8 | XD5 | Screw, 1/4"-20 thread x 5/8" long | 2 |
| 9 | PG365 | Support strap (obsolete) | 1 |
| 10 | VE455 | Bracket | 1 |
| 11 | WE94 | Gasoline tank (includes QD673) (NLA) | 1 |
| 12 | PG161 | Strap | 1 |
| 13 | RG22 | Fuel shut-off valve | 2 |
| — | LP19 | Fuel strainer | 1 |
| 14 | XK38 | Street ell, 1/8" x 90° | 2 |
| 15 | RM1049A | Fuel line | 1 |
| 16 | RG43 | Drain cock | 1 |
| 17 | RF170A | Pipe coupling, 1/8" | 1 |
| 18 | RF888 | Pipe nipple, 1/8" x 5" long (obsolete) | 1 |
| — | RF904 | Pipe nipple, 1/8" x 4" long (obsolete) | 1 |
| 19 | XK44 | Elbow, 1/8" x 90° | 1 |
| 20 | RF934 | Pipe nipple, 1/8" x 1" long | 1 |

## L63F No. 1 Fuel Oil Or Kerosene Burning Engines




OPEN ENGINE




POWER UNIT

Engines which are to operate on No. 1 fuel oil of 38-42° Baume and an Octane rating of 35 or better, or kerosene, must be fitted with low compression cylinder heads and special fittings in carburetor. Do not use this fuel in a standard engine.

The engine must be started on gasoline, usually several carburetor float chambers full of gasoline is sufficient for warming up. For this purpose a small gasoline priming tank (Ref. 7) and a carburetor float chamber drain cock (Ref. 16) are furnished.

Before starting the engine, close all shut-off valves and fill the large tank with fuel oil, the small priming tank with gasoline and engine crankcase with a good grade of lubricating oil. The fuel oil shut-off valve is part of the fuel strainer. On power units, the fuel strainer is mounted underneath the large fuel tank. On open engines, or power units with fuel tank underslung having a fuel pump, the fuel strainer is at the inlet side of the fuel pump. Check again to be sure the valve is closed, then open the float chamber drain cock and after all the fuel oil or kerosene from previous operation has been drained, close this cock, and fill the carburetor float chamber with gasoline by opening the shut-off valve below the gasoline priming tank. With the magneto switch in the running position, the carburetor choke can be closed and the engine cranked.

After the engine starts, let it operate on gasoline from two to three minutes then switch over to No. 1 fuel oil or kerosene by first closing the gasoline shut-off valve and immediately opening the fuel oil valve. The amount of warm up will depend on the grade of fuel. Adjust the carburetor high speed needle valve for smoothest operation.

With No. 1 fuel oil or kerosene there is a loss in power of about 20% as compared to gasoline and this must be taken into consideration when figuring power requirements.

## L63F No. 1 Fuel Oil Or Kerosene Burning Engines

**USE WITH MODEL VHO4 OPEN ENGINE AND POWER UNIT (see pg. 29)**

| ITEM | PART NO. | DESCRIPTION | QTY |
|---|---|---|---|
| — | AB100D | Cylinder head | 2 |
| — | L63F | Carburetor, Zenith model 68-7, no. 12205 | 1 |
| — | LD253A1 | Manifold (obsolete) | 1 |
| — | XD21 | Screw, 5/16"-18 thread x 1-1/2" long | 8 |
| 1 | PD77 | Nut, 1/4"-20 thread | 2 |
| 2 | PE3 | Lock washer, 1/4" (for tank strap) | 2 |
| — | PE3 | Lock washer, 1/4" (for tank bracket; open engine) | 3 |
| 3 | XD4 | Screw, 1/4"-20 thread x 1/2" long (open engine) | 4 |
| 4 | PG840 | Fuel tank bracket (open engine) | 1 |
| 5 | PG161 | Strap | 1 |
| 6 | XD5 | Screw, 1/4"-20 thread x 5/8" long | 2 |
| 7 | WE94 | Gasoline tank (includes QD673) (NLA) | 1 |
| 8 | RF794 | Pipe nipple, 1/8" x 3/4" long (open engine) | 2 |
| — | RF794 | Pipe nipple, 1/8" x 3/4" long (power unit) | 1 |
| 9 | XK63 | Pipe tee, 1/8" x 1/8" x 1/8" | 1 |
| 10 | RM1049A | Fuel line, 6-5/8" long | 1 |
| 11 | XK38A | Street ell, 1/8" x 90° (open engine) | 2 |
| — | XK38A | Street ell, 1/8" x 90° (power unit) | 1 |
| 12 | RG22 | Fuel shut-off valve | 1 |
| 13 | LP19 | Fuel strainer | 1 |
| 14 | RF1096 | Elbow, 1/8" pipe x 45° (open engine) | 1 |
| 15 | RM850-1 | Fuel line, 8-1/4" long (open engine) | 1 |
| 16 | RG43 | Drain cock | 1 |
| 17 | RF1225 | Elbow | 2 |
| 18 | RF170A | Pipe coupling, 1/8" | 1 |
| 19 | RF904 | Pipe nipple, 1/8" x 4" long (open engine) | 1 |
| 20 | RM1150 | Fuel line, 18-1/4" long (power unit) | 1 |
| 21 | RF888 | Pipe nipple, 1/8" x 5" long (power unit) (obsolete) | 1 |
| 22 | XK44 | Elbow, 1/8" x 90° (power unit) | 1 |
| 23 | RF934 | Pipe nipple, 1/8" x 1" long (power unit) | 1 |