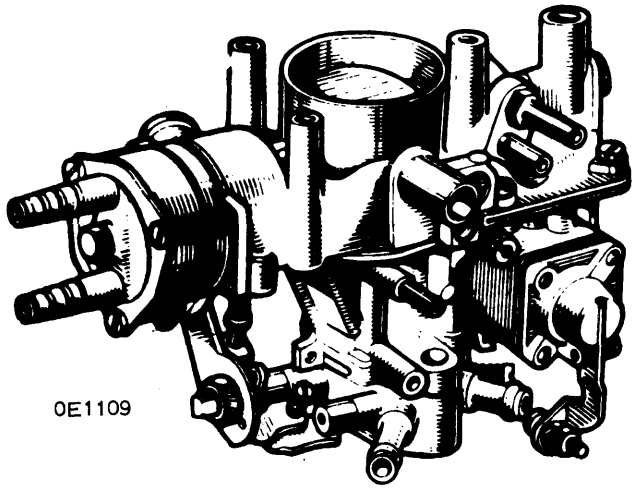
SOLEX 32 DITA & 32 DISTA 1-BARREL

RENAULT

R-8 R-1130 & R-1132 (1963-67)
Caravelle R-1131 & R-1133 (1963-67)

DESCRIPTION

Solex single barrel downdraft carburetor has an idling, a main, and a power enrichment system. Extra fuel for acceleration is provided by a diaphragm type acceleration pump. An integral automatic choke provides richer mixture required for cold starting. Increased idle speed needed until engine has reached operating temperature is controlled by fast idle system.



SOLEX 32 DITA CARBURETOR

OPERATION

►*NOTE – Solex 32 DITA and Solex 32 DISTA carburetors differ only in (1) method used to heat automatic choke, and (2) fast idle system. These changes impose only slight differences in overhaul procedure.*

Fuel Supply

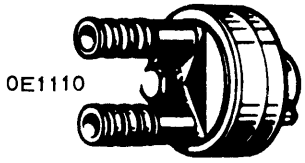
Fuel is delivered by fuel pump under pressure to carburetor bowl through inlet fitting, filter screen, and needle valve assembly. Level of fuel in carburetor bowl is controlled by action of float opening and closing needle valve.

Automatic Choke

►*NOTE – Before starting engine when it is cold, it is necessary to depress accelerator pedal once, and then release it, to free fast idle cam, and permit automatic choke to operate.*

Designed to provide a richer mixture, which is necessary when starting a cold engine, and a faster idle during warm up. Thermostatic spring in cover tends to unwind when it becomes cold. Since spring position is fixed in center, unwinding action at outer and, in contact with an arm on choke plate shaft, causes choke plate to be closed.

Solex 32 DITA – Heat required to control automatic choke by action of a thermostatic spring is provided by passage of coolant from engine cooling system through a heat exchange housing. This heat exchange housing is serviced only as a unit, and, in case of failure, should be replaced as such.

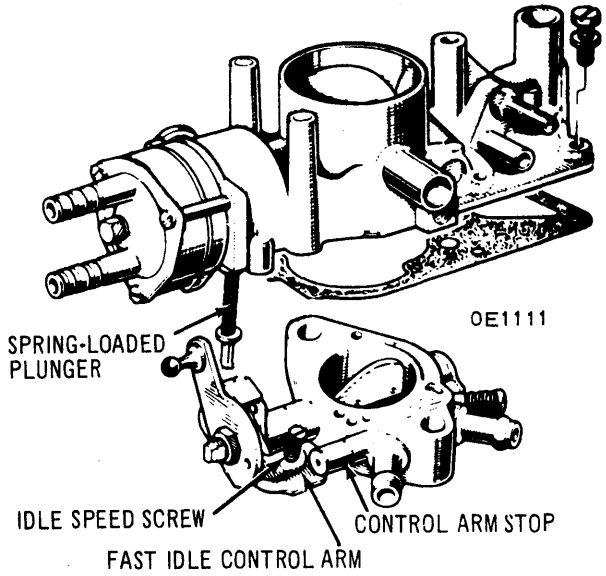


HEAT EXCHANGE HOUSING

Solex 32 DISTA – After engine has been started, manifold vacuum, acting on choke piston, opposes spring tension. As spring gradually becomes warmer, it tends to wind, reducing tension applied to hold choke plate closed. Choke piston is then able to keep choke plate completely open. Because of designed leakage past choke piston, heated air is continuously being drawn through automatic choke. Air is heated in a heat exchanger installed in exhaust manifold, and connected to carburetor by a hot air tube, and cold air tube.

Fast Idle System

Solex 32 DITA – 1) Increased idle during warm up time is controlled by position of fast idle cam. Instead of adjusting against a boss on housing, idle speed adjustment screw adjusts against a fast idle control arm. One end of this arm rests against idle speed adjustment screw, and its other end is in contact with lower end of a spring-loaded plunger protruding from thermostatic spring housing. Upper end of this plunger contacts one of the steps of fast idle cam, according to its position determined by temperature reaction of bi-metallic spring.



FAST IDLE LINKAGE

SOLEX 32 DITA & 32 DISTA 1-BARREL (Cont.)

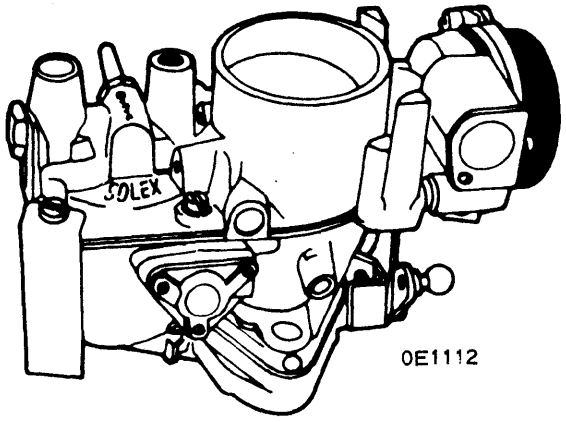
2) When engine is cold, plunger pushes down on fast idle control arm, when accelerator pedal is depressed, so that throttle is held in correct position for fast idling.

3) When engine has reached operating temperature, plunger moves up to deepest step of fast idle cam so that fast idle control arm swings, thereby lowering its point of contact with idle speed adjustment screw, permitting throttle to close to correct position for normal idling. When accelerator pedal is depressed, a protrusion from base of carburetor prevents fast idle control arm from swinging too far.

4) Use of this design for fast idle control does not change procedure for obtaining correct (600-650 RPM) idle speed adjustment, but it does increase importance of adjustment since same adjustment controls both normal idle speed, and all stages of fast idle.

5) This change in linkage imposes only slight differences in overhaul procedures.

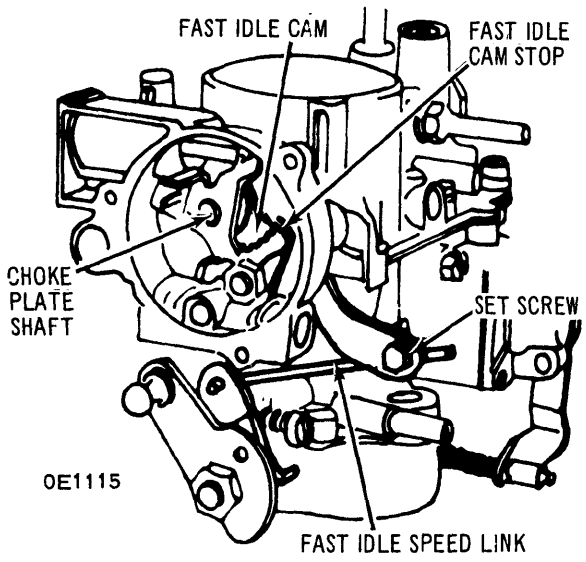
Solex 32 DISTA – Faster idle during warm up time is controlled by position of fast idle cam, which has a separate thermostatic spring. When it is cold, cam is in position so that stop is against high step of cam. Stop is connected to throttle arm through linkage. As engine warms up, cam moves gradually so that lower steps are contacted by stop, until, at lowest step, stop does not contact cam, and idle speed is controlled by setting of idle speed adjustment screw.



SOLEX 32 DISTA CARBURETOR

Idling And Power Transition

At idle speed, with engine at normal operating temperature, fuel is drawn from carburetor bowl through main jet, and goes through its passage to the idle jet. Fuel is metered by jet, and air through calibrated air bleed is mixed with it. Mixture is drawn through passage to lower idle mixture port, where amount of air/fuel mixture entering throttle bore is regulated by adjustment of idle mixture adjustment screw. Just above closed throttle plate position is upper idle mixture port which serves two purposes. First, when throttle is closed, it provides additional air for idle mixture. Second, as throttle is being opened, it gradually delivers additional air/fuel mixture to throttle bore, providing a smooth change from idle system to main system. In normal operating ranges, fuel is drawn from carburetor bowl through main jet into well containing fuel/air mixture tube, where it is mixed with air from correction jet. Mixture is discharged into venturi assembly from main nozzle.



FAST IDLE ADJUSTMENT

Acceleration

A diaphragm accelerator pump is provided to supply fuel for period of change from closed to open throttle operation during acceleration. Fuel is drawn into diaphragm chamber from carburetor bowl through accelerator pump inlet valve. When throttle is opened, linkage from throttle to accelerator pump arm causes spring tension to be applied to arm, which presses against diaphragm. This pressure forces fuel through passages to accelerator pump nozzle, which directs stream of fuel to venturi assembly. Inlet valve and nozzle are each equipped with a ball check valve to prevent reverse flow of fuel.

Power Enrichment

Operating conditions calling for wider throttle openings require a richer mixture than the comparatively lean mixture provided by main system. Additional fuel is provided by a vacuum controlled power enrichment system. Power enrichment valve is held closed by vacuum from a port below throttle plate applied against spring tension to power enrichment diaphragm. When throttle opening is made wider, vacuum is decreased, permitting spring tension to open valve. Fuel is then permitted to flow from carburetor bowl, metered through power enrichment jet, into well containing fuel/air mixture tube, providing a richer mixture to be discharged from main nozzle. Valve closes again as soon as vacuum increases enough to overcome spring tension.

MAINTENANCE

At 1,000, 6,000, and every 6,000 miles thereafter, with engine cold, make sure the two nuts holding carburetor base to manifold are tight, and that there is no air leak at this point (do not overtighten). At same intervals, remove cover to clean any sediment from carburetor bowl, and clean inlet filter screen.

SOLEX 32 DITA & 32 DISTA 1-BARREL (Cont.)

ADJUSTMENT

Idle Speed Adjustment

Adjustments made with engine at operating temperature, choke plate fully open, and fast idle control not in operation. Connect tachometer and adjust idle speed adjustment screw to obtain specified engine RPM.

Idle Mixture Adjustment

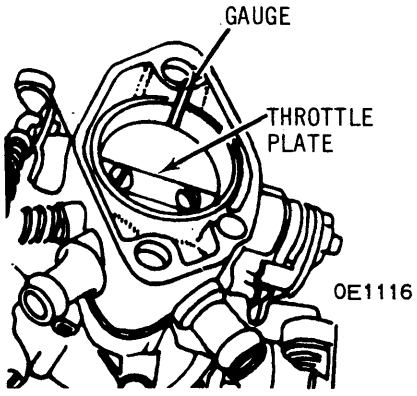
Turn idle mixture screw in until engine begins to "lope". Turn screw out until engine roughness just disappears. If idle speed has now increased, reset to specified RPM and repeat idle mixture adjustment until best quality idle has been obtained. *NOTE – Idle mixture screw must not be forced against its seat.*

Automatic Choke Adjustment

Preset at factory, with index on automatic choke cover aligned with index on body. No other adjustment is approved or recommended.

Fast Idle Adjustment

Preset at factory. Use following procedure to check and maintain factory adjustment. Position choke plate shaft so that fast idle cam stop is on high step of fast idle cam. Set fast idle speed throttle opening to specifications using correct diameter of wire gauge between throttle plate and bore. Adjust set screw on fast idle speed link to maintain this position.



THROTTLE OPENING ADJUSTMENT

SPECIFICATIONS

Renault Model	Reference No.	Engine Idle RPM	Auto. Choke Setting	Venturi	Main Jet	Correct. Jet	Idle Jet	Acc. Pump Nozzle	Power Enrich. Jet
R.1130	315	600-650	Index	23	117	130	45	40	120
R.1130	327	600-650	Index	23	120	110	45	40	120
R.1131	316	600-650	Index	24	127	125	47	40	85
R.1132	322	600-650	Index	23	120	140	45	40	120
R.1132	313	600-650	Index	23	120	140	45	40	120
R.1133	323	600-650	Index	23	120	130	45	40	70
R.1133	314	600-650	Index	23	120	130	45	40	120

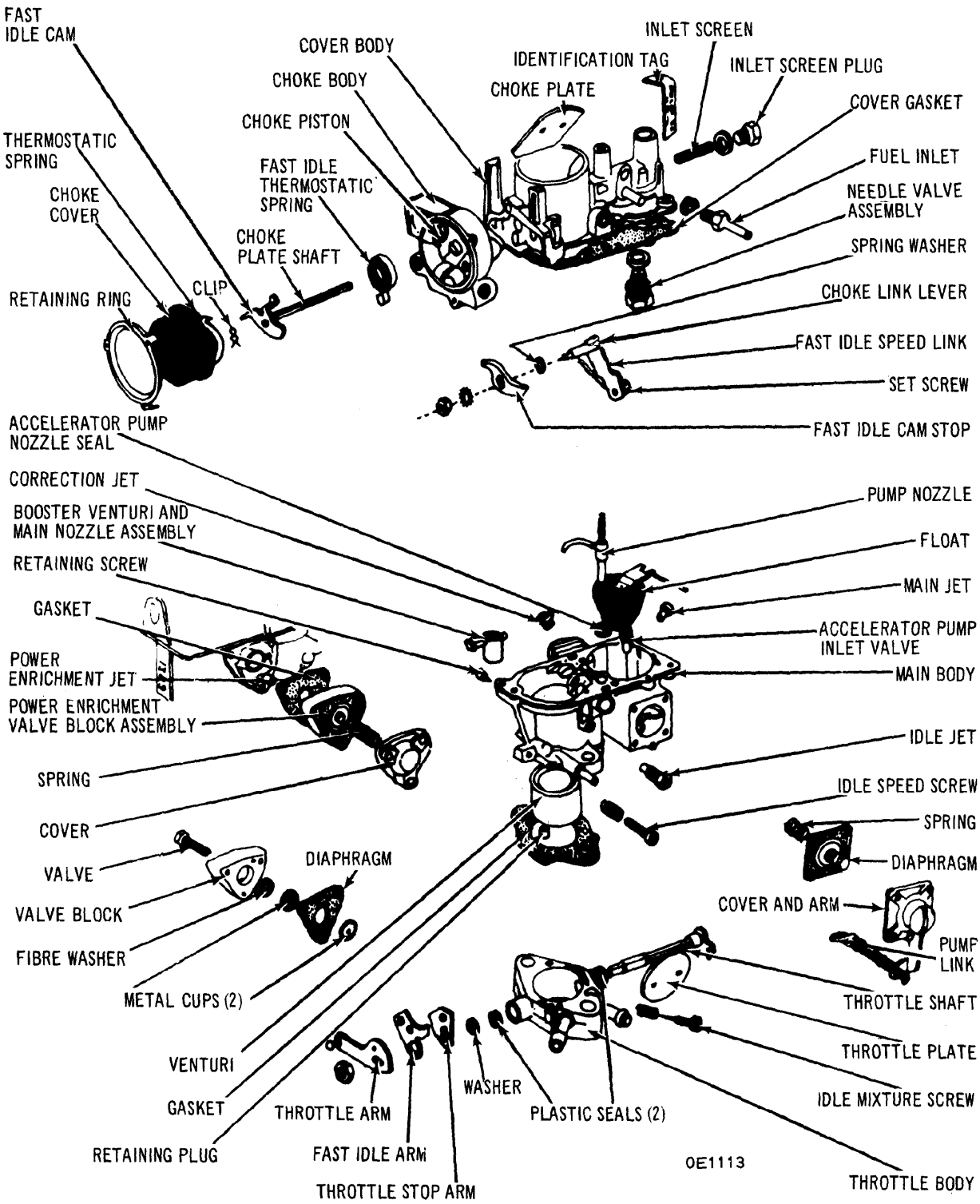
SPECIFICATIONS (CONT'D).

Renault Model	Reference No.	Needle Valve	Float Weight	Fast Idle Speed Throttle Opening	Accelerator Pump Arm Travel
R.1130	315	① .059" (1.5 mm)	.2 ozs. (5.7 gram)	.033" (.85 mm)	.138" (3.5 mm)
R.1130	327	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.035" (.90 mm)	Not Available
R.1131	316	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.037" (.95 mm)	.118" (3.0 mm)
R.1132	322	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.037" (.95 mm)	.158" (4.0 mm)
R.1132	313	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.033" (.85 mm)	.158" (4.0 mm)
R.1133	323	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.037" (.95 mm)	.158" (4.0 mm)
R.1133	314	.059" (1.5 mm)	.2 ozs. (5.7 gram)	.033" (.85 mm)	.158" (4.0 mm)

① – Needle valve without spring.

NOTE – Carburetor type and its reference number are marked on a tag held in place by a float chamber cover retaining screw.

SOLEX 32 DITA & 32 DISTA 1-BARREL (Cont.)



SOLEX 32 DISTA CARBURETOR ASSEMBLY (TYPICAL)

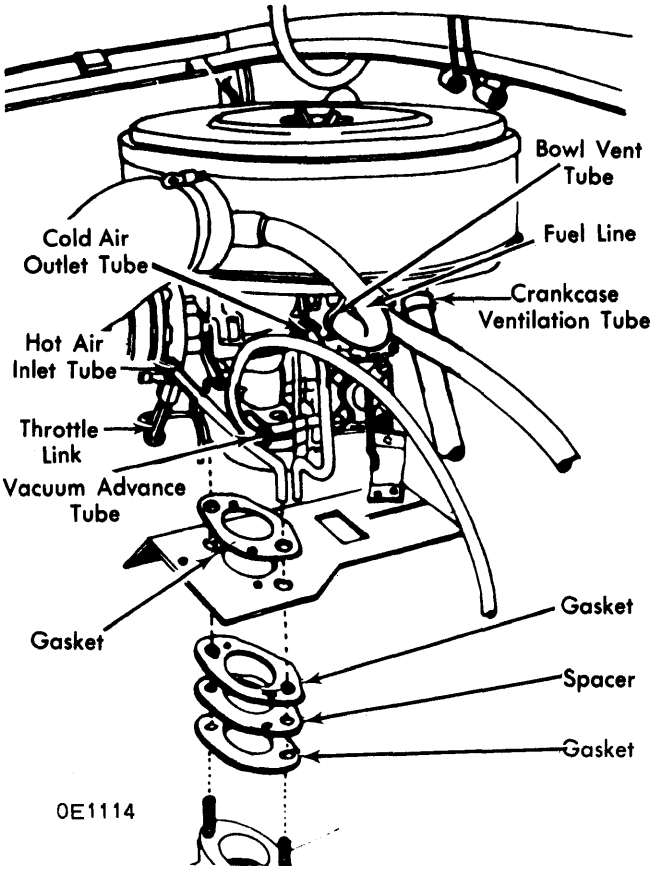
SOLEX 32 DITA & 32 DISTA 1-BARREL (Cont.)

REMOVAL AND REPLACEMENT

1) Loosen clamp, and disconnect tube from air intake scoop. Disconnect bowl vent tube from carburetor end. Remove wing nut holding air filter housing. Remove air filter housing and crankcase ventilation tube. Disconnect fuel line. Disconnect cold air outlet tube and hot air inlet tube. Disconnect distributor vacuum advance line at carburetor. Disconnect throttle link from throttle linkage arm. Loosen hose clamps, disconnect the two water hoses at carburetor end and install plugs in hose ends to prevent loss of coolant.

2) Lift carburetor straight up to clear studs. Remove carburetor base gasket. Inspect plate on which throttle cable elbow is mounted, and the gasket, spacer, and gasket beneath plate, to be sure of good sealing against air leaks. Inspect all parts and connections to determine if they are still suitable for use, or must be replaced.

3) To replace, reverse removal procedure.



INSTALLATION SEQUENCE

OVERHAUL

►*NOTE – Following procedure covers a complete overhaul. In servicing in the field, it is not practical nor desirable to perform some of the operations unless prior examination reveals that it will be necessary to use new parts.*

Disassembly

1) Push throttle end of fast idle speed link out of its plastic bushing. Remove five cover screws and identification tag. Note that one screw longer than others is in position next to automatic choke. Lift cover body from main body and remove cover gasket. Remove float and hinge pin. Remove accelerator pump nozzle with spring attached by lifting straight up from body. Remove seal. Push accelerator pump link out of its plastic bushing. Then,from underneath, remove two screws holding throttle body to main body and separate the two bodies. Remove gasket.

2) Remove fuel inlet fitting and its copper seal. Remove inlet screen plug, gasket, and inlet filter screen. Remove needle valve assembly and seal. Remove three screws and retaining ring around automatic choke cover and remove cover. Remove hairpin clip and lift thermostatic spring from its slot. (Note position of spring carefully for reassembly.) Remove two screws holding choke plate in choke plate shaft and slide choke plate out. Slide choke plate shaft out, disengaging choke piston pin as this is done. Remove fast idle thermostatic spring from shaft bushing slot. (Note position of spring carefully for reassembly.) Remove two screws holding automatic choke body to cover body and remove body.

3) Remove nut, lock washer, and fast idle cam stop from shaft of choke link lever. Remove lever and spring washer from body. *CAUTION – Do not separate fast idle speed link from choke link lever.* Position of this set screw determines throttle opening during fast idle operation, and is preset at factory. If these parts are separated accidentally and if fast idle speed link has been indented by set screw, link must be replaced with a new one. Do not tighten set screw at this time.

4) Remove idle jet, accelerator pump inlet valve, main jet, and correction jet. Remove idle speed adjustment screw and spring. Remove four screws holding accelerator pump cover and arm in plate. Remove accelerator pump cover and arm, with link. *NOTE – Length of this link is adjusted at factory, and is not to be altered.* Remove diaphragm assembly and spring.

5) Remove three screws holding power enrichment assembly in place. Remove cover, spring, valve block assembly, and gasket. Remove nut from valve to permit removing diaphragm with two metal cups from valve block. Remove fibre washer and valve. Remove power enrichment jet from main body.

6) Remove venturi retaining screw and plug, and remove venturi. Remove nut at end of throttle shaft. Remove throttle linkage arm, fast idle control arm, throttle stop arm, and washer. Mark throttle shaft and plate as reference for later reassembly, and remove two screws holding throttle plate in shaft. Slide plate out of shaft. Slide throttle shaft from throttle body and remove two plastic seals. Remove idle mixture adjustment screw and spring.

7) Clean all metal parts in a suitable solvent, and blow dry with air. Inspect to be sure that all passages are clear; that all mating surfaces are flat and make good contact;and that jets are clear,serviceable, and in accordance with specifications. Check all seals, diaphragms and gaskets to determine if they can be reused, or must be replaced.

SOLEX 32 DITA & 32 DISTA 1-BARREL (Cont.)

Reassembly

1) Install two plastic seals and slide throttle shaft in throttle body. Insert throttle plate in shaft according to marks made before disassembling. Fasten in place with two screws. As screws are being tightened, tap throttle plate lightly in place in bore, to assure proper alignment of plate. Peen threads of screws to prevent them from loosening. (Be sure this is done without causing distortion to shaft or plate.)

2) Install in sequence on throttle shaft, the washer, throttle stop arm, fast idle control arm, throttle linkage arm, and nut. Install idle mixture adjustment screw and spring. Seat needle lightly against its seat (do not distort needle by excessive tightening). Back off one and a half to two turns for preliminary setting. Install venturi in its bore, aligning grooves with booster venturi and main nozzle assembly. Install plug and screw to retain venturi.

3) Install power enrichment jet. Pass power enrichment valve through its bore in valve block. Install fibre washer, one metal cup, diaphragm, the other metal cup, and nut. Stake nut to prevent loosening. In following sequence, install power enrichment assembly; gasket, valve block assembly, spring (one end around valve nut), and cover. Fasten in place with three screws. Install accelerator pump spring on diaphragm nut. Install diaphragm assembly spring first on main body. Install cover and arm assembly with link and fasten in place with four screws.

4) Install correction jet, main jet, accelerator pump inlet valve, and idle jet. Install spring washer on choke link lever shaft and insert shaft through bore in automatic choke body. Install fast idle cam stop, and lock in place with lock washer and nut. Install automatic choke body on cover body using two screws and lock washers to hold it in place. Install fast idle thermostatic spring in shaft bushing slot, being sure to engage loop at outer end of spring on pin of fast idle cam. Install choke plate shaft in its bore, being sure to engage piston pin. Slide choke plate through slot of choke plate shaft and fasten in place with two screws. Peen threads of screws to prevent them from loosening. (Be sure this is done without causing distortion to shaft or plate.)

5) Install needle valve assembly and seal. Install inlet filter screen, and retaining plug with its seal. Install inlet fuel fitting and seal. Install gasket and throttle body under main body and fasten in place with two screws. Stake screws to prevent them from loosening. Press accelerator pump link into its plastic bushing. Install accelerator pump nozzle with its seal and spring. Install float and its hinge pin.

6) Position cover gasket on main body. Install cover body on main body, using five screws and lock washers to fasten it in place. (Be sure longer screw is installed in hole next to automatic choke body.) Identification tag must be installed under either one of outside corner screws.

7) Press throttle end of fast idle speed link in its plastic bushing. If, for some reason, position of set screw on this link has been altered from factory setting, use following procedure to obtain correct adjustment: Position choke plate shaft so that fast idle cam stop is on high step of fast idle cam. Set fast idle speed throttle opening to specifications using correct diameter of wire gauge between throttle plate and bore. Adjust set screw on fast idle speed link to maintain this position.

8) Install idle speed adjustment screw and spring. Make sure fast idle control is not in operation. Turn idle speed adjustment screw in until it just contacts throttle stop arm with throttle plate closed. Turn in one and a half turns more to obtain preliminary setting. Install thermostatic spring in automatic choke cover, and secure in place with hairpin clip. Be sure position of spring is as noted when disassembling. Install automatic choke cover on choke body, being sure thermostatic spring engages tab on shaft arm properly. Fasten in place with retaining ring and three screws. Be sure mark on housing and mark on cover are aligned.