Carburetors By Engine Model

MODEL	WISCONSIN PART NO.	VENDOR	REPAIR KIT PART NO.
AA, AB, ABN, ACN,	L26 Series	Stromberg	69RK1028
AK, AKN, BKN, ABS	L52 Series	Marvel-Schebler	46-286-1024A 46-286-1026A
AGH, AHH, AFH, ADH, AEH, VE4	L45 Series	Stromberg	69-382391 Gasket kit
AEH, AENL, AHH	L48 Series	Zenith	LQ36/LQ38
ACN, BKN, VF4D	L51 Series	Zenith	LQ35/LQ34
VP4, VP4D, VG4D	L54 Series	Marvel-Schebler	46-286-756A 46-286-776A
VR4D	L56 Series	Zenith	93K12054 93K12311
VP4D, VG4D, VH4D, W4-1770	L57 Series	Zenith	LQ37
V460D, V461D, V465D	LZ77 Series	Zenith	LQ37
AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD	L63 Series	Zenith	LQ33/LQ39
VH4D, AGND, TJD	L64 Series	Marvel-Schebler	46-286-1248A 46-286-1228A
S7D, HS7D, S8D, HS8D	L80 Series	Zenith	LQ40/LQ42
S10D, S12D, S14D	L86 Series	Zenith	LQ44/LQ45
S10D, S12D, S14D	L95 Series	Zenith	LQ44/LQ45
S8D, TRA12D	L97 Series	Walbro	LQ52
S8D, TRA12D	L104 Series	Walbro	LQ52
VH4D	L98S1	Zenith	LQ44
S12D, S14D	L106 Series	Walbro	LQ54A
VH4D	L108 Series	Walbro	LQ55
TJD	L111 Series	Walbro	LQ55
W2-880	L116S1	Walbro	LQ56
W2-1230	L119S1	Walbro	LQ58
W2-1235	L118S1	Walbro	LQ57
W2-1230, W2-1235, W2-1250	L122 Series	Walbro	LQ59
S12D, S14D	L123 Series	Walbro	LQ60

Carburetors By Part Number

WISCONSIN PART NO.	VENDOR	DESCRIPTION	MODEL
L26 Series	Stromberg	Standard, horizontal	AA, AB, ABN, ACN, AK, AKN, BKN, ABS
L45 Series	Stromberg	Standard, updraft	ADH, AEH, AFH, AGH, AHH, VE4
L48 Series	Zenith	Standard, updraft, single venturi	AEH, AENL, AHH
L51 Series	Zenith	Standard, horizontal	ACN, BKN, VF4D
L52 Series	Marvel-Schebler	Standard, float type	AKN, BKN, ACN, AA, AB, ABS, ABN, AK
L54 Series	Marvel-Schebler	Standard, float type	VP4, VP4D, VG4D
L56 Series	Zenith	Horizontal/high angle	VR4D
L57 Series	Zenith	Operation standard, horizontal	VP4D, VG4D, VH4D, W4-1770
L63 Series	Zenith	Standard, updraft, single venturi	AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD
L64 Series	Marvel-Schebler	Fixed jet	VH4, TJD
L64A Series	Marvel-Schebler	Adjustable jet	AGND
L65S1	Zenith	LPG, liquid and vapor withdrawal	AENL, AENLG
L66 Series	Zenith	Second stage regulator	V461DG, V465DG
L67 Series	Zenith	LPG vaporizer, primary regulator	V461DG, V465DG
L68 Series	Zenith	LPG, vapor withdrawal	ACNDG, HACNDG, BKNDG, HBKNDG, AENLDG
L69 Series	Zenith	Primary regulator	AGNDG, THDG, TJDG, VF4DG, VG4DG, V461DG, V465DG
L70 Series	Zenith	LPG, open engine	VG4DG
LZ77 Series	Zenith	Standard, back-suction	V460D, V461D, V465D
L79 Series	Zenith	LPG pressure carb, liquid and vapor	THDG, TJDG, TJD, THD

Carburetors By Part Number (Cont.)

WISCONSIN PART NO.	VENDOR	DESCRIPTION	MODEL
L80 Series	Zenith	Standard, updraft	S7D, HS7D, S8D, HS8D
L82 Series	Zenith	Two-stage regulator	AENL, AENLDG
L83 Series	Zenith	LPG pressure carb, liquid withdrawal	V461D, V465D
L84 Series	Impco	Natural gas carb,	V461D, V465D
L86 Series	Zenith	Standard, horizontal, balanced	S10D, S12D, S14D
L88 Series	Zenith	LPG vapor withdrawal	S7D, S8D
L89 Series	Zenith	LPG vapor carb	S10D, S12D, S14 D
L90 Series	Algas	LPG converter	V461DG, V465DG, VF4DG, VH4DG, VG4DG, THDG
L91 Series	Algas	LPG carb, liquid withdrawal	V461DG
L92 Series A- LPG B- LPG W/VAC SW	Algas C- NG D- NG W/VAC SW.	LPG carb, liquid, vapor and natural gas	VF4DG, THDG, VH4D
L93 Series	Algas	Primary regulator	THDG, VF4DG, VH4DG, VG4DG
L94 Series	Algas	LPG carb, standard and natural gas	VG4DG
L95 Series	Zenith	Standard, horizontal	S10D, S12D, S14D
L97 Series	Walbro	Standard, adjustable jet	S8D, TRA12D
L98 Series	Zenith	LTV carb	VH4D
L104 Series	Walbro	Standard, adjustable jet	S8D, TRA12D
L106 Series	Walbro	Fixed jet	S12D, S14D
L106A Series	Walbro	Adjustable jet	S12D, S14D
L108 Series	Walbro	Standard	VH4D, TJD
L109 Series	Garretson	LPG regulator	S12D, S14D, AENL
L110 Series	Garretson	LPG, vapor withdrawal	S12D, S14D
L111 Series	Walbro	Standard	VH4D, TJD
L115 Series	Walbro	Standard, fixed jet	W2-1230
L116 Series	Walbro	Standard, fixed jet	W2-880
L118 Series	Walbro	Standard, fixed jet	W2-1235

Carburetors By Part Number (Cont.)

WISCONSIN PART NO.	VENDOR	DESCRIPTION	MODEL
L119 Series	Walbro	Standard, fixed jet	W2-1230
L122 Series	Walbro	Standard, fixed jet	W2-1230, W2-1235, W2-1250
L123 Series	Walbro	Standard, fixed jet	S12D, S14D

Carburetors By Part Number – Instructions And Parts List

WIS NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L26	Stromberg	18000	NLA	None	69RK1028	AA, AB
L26-2	Stromberg	18010	NLA	None	NLA	AA, AB, ABN, ACN
L26A	Stromberg	18020	NLA	None	NLA	AK, AKN, BKN
L26-10	Stromberg	425068	NLA	None	NLA	ABS
L45	Stromberg	425001A	NLA	None	NLA	VE4
L45-2	Stromberg	425000A	NLA	None	Gasket kit 69-382391	VE4
L45A2	Stromberg	425041	NLA	None	Gasket kit 69-382391	AHH
L45A4	Stromberg	425044	NLA	L48KS1	Gasket kit 69-382391	AGH
L45E3	Stromberg	425093	NLA	None	Gasket kit 69-382391	AHH
L45E4	Stromberg	425094	NLA	None	Gasket kit 69-382391	AGH
L45E8	Stromberg	426039	NLA	None	Gasket kit 69-382391	AHH
L45-11	Stromberg	426026	NLA	None	Gasket kit 69-382391	VE4
L45-14	Stromberg	426064	NLA	None	Gasket kit 69-382391	VE4
L45-20	Stromberg	426041	NLA	None	Gasket kit 69-382391	VF4
L45-22	Stromberg	426067	NLA	None	Gasket kit 69-382391	VF4
L45-9	Stromberg	426080	NLA	None	Gasket kit 69-382391	VE4
L45A	Stromberg	425017	NLA	None	Gasket kit 69-382391	AFH
L45A1	Stromberg	425018	NLA	None	Gasket kit 69-382391	AFH
L45E	Stromberg	426013	NLA	None	Gasket kit 69-382391	AFH
L45F1	Stromberg	426015	NLA	None	Gasket kit 69-382391	AEH
L45B	Stromberg	426019	NLA	None	Gasket kit 69-382391	ADH
L45B2	Stromberg	426020	NLA	L63BU	Gasket kit 69-382391	AEH
L45B3	Stromberg	426021	NLA	L63BU	Gasket kit 69-382391	AEH
L45E6	Stromberg	426040	NLA	L63BU	Gasket kit 69-382391	AFH
L45J	Stromberg	426073	NLA	L63BU	Gasket kit 69-382391	ADH
L45K	Stromberg	427014	NLA	L63BU	Gasket kit 69-382391	AEH
L48	Zenith	10034E	NLA	L63S1	LQ38	AEH, AENL, AHH
L48-1	Zenith	S717	NLA	L63S1	LQ38	AEH, AENL, AHH

Carburetors By Part Number (Cont.)

WIS NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L48-2	Zenith	S632B	NLA	L63S1	LQ38	AEH, AENL, AHH
L48-3	Zenith	S732	NLA	None	LQ38	AEH, AENL, AHH
L48B	Zenith	S1164	NLA	None	LQ38	AEH, AENL, AHH
L48C	Zenith	S1329	NLA	L63CS1	LQ38	AEH, AENL, AHH
L48D	Zenith	S1548	NLA	None	LQ38	AENL
L48E	Zenith	10741	NLA	L63JS1	LQ38	AEH, AHH, AGH, AENL
L48F	Zenith	10457	NLA	L63BUS1	LQ38	AE, AEH, AEHS, AENL
L48G	Zenith	10748	Serviced	—	LQ38	AFH, AHH, AENL
L48H	Zenith	10535	NLA	L63BVS1	LQ38	AHH, AFH, AENL
L48J	Zenith	10595	NLA	L63CS1	LQ36	AHH, AFH, AENL
L48K	Zenith	10610	NLA	L63AS1	LQ38	AFH, AGH, AEH
L48L	Zenith	10627	Serviced	—	LQ36	AEH, AGH, AHH, AENL
L48M	Zenith	10788	NLA	L63JS1	LQ36	AEH, AGH, AHH, AENL
L48N	Zenith	10737	NLA	L63BVS1	LQ38	AEH, AGH, AHH, AENL
L48P	Zenith	10816	NLA	None	LQ38	AEH, AGH, AHH, AENL
L48Q	Zenith	10926	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48U	Zenith	10858	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48V	Zenith	10907	NLA	None	LQ38	AEH, AGH, AHH, AENL
L48Y	Zenith	10932	NLA	None	LQ38	AEH, AGH, AHH, AENL
L48Z1	Zenith	10955	Serviced	—	LQ38	AEH, AGH, AHH, AENL
L48AA	Zenith	11003	NLA	L63KS1	LQ38	AEH, AGH, AHH, AENL
L48AB	Zenith	11206	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48AC	Zenith	11372	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48AD	Zenith	11595	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48AE	Zenith	11494	NLA	None	LQ36	AEH, AGH, AHH, AENL
L48AL	Zenith	11593	NLA	L63ES1	LQ36	AEH, AGH, AHH, AENL
L48BF	Zenith	12095	NLA	L63S1	LQ36	AEH, AGH, AHH, AENL
L48BF-1	Zenith	12095	NLA	L63S1	LQ36	AEH, AGH, AHH, AENL
L48BP	Zenith	13271	NLA	L63AVS1	LQ36	AEH, AGH, AHH, AENL
L48Z	Zenith					AEN
L51	Zenith	10223	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51A	Zenith	10258	NLA	L51ES1	LQ35	ACN, BKN, HACN, HBKN
L51B	Zenith	S1151	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51C	Zenith	10730	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51ES1	Zenith	11026 or 11193	Serviced	—	LQ35	ACN, BKN, HACN, HBKN
L51E1S1	Zenith	12636A	Serviced	—	LQ35	ACN, BKN, HACN, HBKN
L51E2	Zenith	12683B	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51FS1	Zenith	11027 or 11194D	Serviced	—	LQ35	ACN, BKN, HACN, HBKN
L51GS1	Zenith	10956	Serviced	—	LQ34	VF4
L51H	Zenith	11385	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51J	Zenith	11412	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51K	Zenith	11484	NLA	—	LQ35	ACN, BKN, HACN, HBKN
L51LS1	Zenith	12025	Serviced	—	LQ34	VF4D
L51M	Zenith	12539	Serviced	—	LQ35	ACN, BKN, HACN, HBKN
L52	Marvel-Schebler	VH14	NLA	—	46-286-1026A	AKN, BKN, ABS, ACN
L52A	Marvel-Schebler	VH12	NLA	—	46-286-1024A	AKN, BKN, ABS, ACN
L52C	Marvel-Schebler	VH53	NLA	L51ES1	46-286-1024A	AKN, BKN, ABS, ACN

Carburetors By Part Number (Cont.)

WIS NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L52E	Marvel-Schebler	VH70	NLA	L51ES1	46-286-1024A	AKN, BKN, ABS, ACN
L52G	Marvel-Schebler	VH63	NLA	L51FS1	46-286-1026A	AKN, BKN, ABS, ACN
L52J	Marvel-Schebler	VH90	NLA	—	46-286-1024A	AKN, BKN, ABS, ACN
L52K	Marvel-Schebler	VH92	NLA	L51FS1	—	AKN, BKN, ABS, ACN
L52L	Marvel-Schebler	VH93	NLA	L51FS1	—	AKN, BKN, ABS, ACN
L54	Marvel-Schebler	VH16	—	—	46-286-756A	VG4D, VP4, VP4D
L54B	Marvel-Schebler	VH22	—	—	46-286-777	VG4D, VP4, VP4D
L54C	Marvel-Schebler	VH23	—	L57-1S1	46-286-756A	VG4D, VP4, VP4D
L54D	Marvel-Schebler	VH20	—	L57-1S1	46-286-776	VG4D, VP4, VP4D
L54F	Marvel-Schebler	VH30	—	—	46-286-831A	VG4D, VP4, VP4D
L54J	Marvel-Schebler	VH45	—	L57-1S1	46-286-776A	VG4D, VP4, VP4D
L54J1	Marvel-Schebler	VH69A	NLA	L57-1S1	46-286-776A	VG4D, VP4, VP4D
L54K	Marvel-Schebler	VH49	NLA	—	46-286-831A	VG4D, VP4, VP4D
L54N	Marvel-Schebler	VH71	NLA	—	46-286-776A	VG4D, VP4, VP4D
L56	Zenith	12054B	NLA	—	93K12054	VR4D
L56B	Zenith	12311A	NLA	—	93K12311	VR4D
L57	Zenith	11288	NLA	L57-1S1	LQ37	VP4D
L57-1S1	Zenith	11532	Serviced	—	LQ37	VG4D
L57-8	Zenith	11532	Serviced	—	LQ37	VG4D
L57B	Zenith	12347	NLA	L57-1S1	LQ37	VG4D
L57ES1	Zenith	13401	Serviced	—	LQ37	VG4D
L57F	Zenith	11532	NLA	None	LQ37	VG4D
L57GS1	Zenith	13714	Serviced	—	LQ37	VH4D
L57H	Zenith	13821	NLA	L57KS1	LQ37	VH4D
L57KS1	Zenith	13863	Serviced	—	LQ37	VH4D
L57L	Zenith	13866	NLA	L57MS1	LQ37	VG4D
L57MS1	Zenith	13884	Serviced	—	LQ37	W4-1770
L57M1	Zenith	13884	Serviced	—	LQ37	W4-1770
L57M3	Zenith	13884	Serviced	—	LQ37	W4-1770
LZ77S1	Zenith	12708	—	—	LQ37	V460D
LZ77BS1	Zenith	—	NLA	LZ77GS1	LQ37	V461D, V465D
LZ77C	Zenith	12825	NLA	LZ77H	LQ37	V461D, V465D
LZ77GS1	Zenith	13993	Serviced	—	LQ37	V461D, V465D
LZ77H	Zenith	—	Serviced	—	LQ37	V461D, V465D
L63S1	Zenith	12098A	Serviced	—	LQ39	VH4, AGND
L63AS1	Zenith	12188G	Serviced	—	LQ39	VH4, AGND
L63CS1	Zenith	12158D	Serviced	—	LQ39	AENL, THD
L63D	Zenith	12325	NLA	—	LQ39	AENL, THD
L63ES1	Zenith	12199E	Serviced	—	LQ39	AENL, THD
L63FS1	Zenith	12205A	Serviced	—	LQ39	VH4DO
L63G	Zenith	12235E	NLA	—	LQ33	—
L63HS1	Zenith	12236	Serviced	—	LQ39	AENL
L63JS1	Zenith	12239C	Serviced	L63CS1	LQ33	—
L63KS1	Zenith	12234F	Serviced	—	LQ39	AENL, THD
L63L	Zenith	12288C	NLA	L63CS1	LQ33	AENL, THD
L63M	Zenith	12300	NLA	None	LQ33	—
L63NS1	Zenith	12599D	Serviced	—	LQ39	AGND
L63RS1	Zenith	12375D	Serviced	—	LQ33	AENLD
L63U	Zenith	12448D	NLA	None	LQ33	—

Carburetors By Part Number (Cont.)

WIS. NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L63V	Zenith	12449D	NLA	None	LQ39	—
L63W	Zenith	12545C	NLA	None	LQ33	—
L63Y	Zenith	12543C	NLA	L63ES1	LQ33	—
L63Z	Zenith	12546	NLA	None	LQ33	—
L63AA	Zenith	12647	NLA	None	LQ33	—
LZ63-2S1	Zenith	12253A	Serviced	—	LQ39	VF4D, VH4D
LZ63C13S1	Zenith	12229D	Serviced	L263C14S1	LQ33	—
LZ63C2S1	Zenith	12238D	Serviced	—	LQ33	—
L63AF	Zenith	12744B	NLA	L63CS1	LQ33	—
L63ANS1	Zenith	12982B	Serviced	—	LQ39	—
L63APS1	Zenith	13201A	Serviced	—	LQ33	TRA10D
L63AQS1	Zenith	13238A	Serviced	—	LQ39	TRA10D
L63AUS1	Zenith	—	Serviced	—	LQ39	MVH4D
L63AVS1	Zenith	13405A	Serviced	—	LQ39	TRA10D
L63BC	Zenith	13420A	NLA	L63BLS1	LQ39	—
L63BD	Zenith	13449A	NLA	—	LQ39	—
L63BJ	Zenith	—	NLA	—	LQ39	—
L63BLS1	Zenith	13694	Serviced	—	LQ39	TJD
L63BMS1	Zenith	13757	Serviced	—	LQ33	AENL
L63BPS1	Zenith	12234D	Serviced	—	LQ33	AENL
L63BUS1	Zenith	OE3800	Serviced	—	—	VH4D
L63BVS1	Zenith	OE3803	Serviced	—	—	AGH
L63BWS1	Zenith	O-14017	Serviced	—	93C52-7-23 LQ39	VH4D
L63BY	Zenith	—	NLA	—	—	VH4D
LZ63-11S1	Zenith	—	Serviced	—	LQ39	VF4D, VH4D
LZ63-16	Zenith	—	Serviced	—	—	VH4D
L64S1	Marvel-Schebler	TSX690	—	L63S1	46-286-1228A	VH4D
L64AS1	Marvel-Schebler	TSX770/676	—	L63AS1	46-286-1248A	AGND
L64F	Marvel-Schebler	TSX954	—	—	46-286-1580	TJD
LZ64-6S1	Marvel-Schebler	—	—	—	46-286-1228A	VH4D
L80S1	Zenith	12810	—	L80LS1	LQ40	—
L80AS1	Zenith	12882	NLA	None	LQ42	—
L80BS1	Zenith	12921	—	—	LQ40	—
L80CS1	Zenith	12923	NLA	L80NS1	LQ40	—
L80DS1	Zenith	12931	NLA	L80KS1	LQ40	—
L80ES1	Zenith	12924	NLA	L80LS1	LQ40	—
L80FS1	Zenith	12925	NLA	None	LQ42	—
L80GS1	Zenith	12926	NLA	L80NS1	LQ40	—
L80HS1	Zenith	12947	NLA	L80PS1	LQ42	—
L80JS1	Zenith	12921	—	—	LQ40	—
L80KS1	Zenith	12931	Serviced	—	LQ40	S7D, S8D, S7DO
L80LS1	Zenith	12924	Serviced	—	LQ40	S7D, S8D, S7DO
L80MS1	Zenith	12925	NLA	None	LQ42	S7D, S8D, S7DO
L80NS1	Zenith	12926	Serviced	—	LQ40	S8D
L80PS1	Zenith	12947	Serviced	—	LQ42	S7D, S8D
L80QS1	Zenith	13013	NLA	None	LQ40	—
L80RS1	Zenith	13045	Serviced	—	LQ40	HS7D
L80US1	Zenith	13046	Serviced	—	LQ40	HS8D
L80WS1	Zenith	13078	Serviced	—	LQ42	HS8D

Carburetors By Part Number (Cont.)

WIS. NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L86AS1	Zenith	13022B	Serviced	—	LQ44	S10D, S12D
L86BS1	Zenith	13027B	Serviced	—	LQ45	S10D, S12D
L86CS1	Zenith	13040B	NLA	—	LQ44	S10D, S12D
L86DS1	Zenith	13064A	NLA	—	LQ45	S10D, S12D
L86ES1	Zenith	13137A	Serviced	—	LQ45	S10DO, S12DO, S12D
L86FS1	Zenith	13138A	Serviced	—	LQ45	S10DO, S12DO, S12D
L86GS1	Zenith	13155A	Serviced	—	LQ45	S10DO, S12DO, S12D
L86HS1	Zenith	13208A	NLA	L105AS1	LQ44	S12D
L86JS1	Zenith	13224A	NLA	None	LQ44	S12D, S10D
L86KS1	Zenith	13225A	—	—	LQ45	S12D, S10D
L86LS1	Zenith	13187A	NLA	None	LQ44	S12D
L86MS1	Zenith	13188A	Serviced	—	LQ45	S12D, S14D
L86QS1	Zenith	13322A	NLA	None	LQ45	—
L95S1	Zenith	13385A	NLA	None	LQ45	—
L95AS1	Zenith	13417A	—	L106AS1	LQ44	—
L95BS1	Zenith	13395A	—	—	LQ44	—
L95CS1	Zenith	13561A	Serviced	—	LQ45	S14D
L95ES1	Zenith	13557A	Serviced	—	LQ45	S14D
L95FS1	Zenith	13573A	—	—	LQ44	—
L95HS1	Zenith	13648A	—	—	LQ44	—
L97	Walbro	LME35	Serviced	—	LQ52	—
L97AS1	Walbro	LME72	Serviced	—	LQ52	TRA12D
L98	Zenith	13454	NLA	None	LQ44	VH4D
L104	Walbro	LME73	NLA	—	LQ52	—
L106	Walbro	LMH16	NLA	—	LQ54A	—
L106AS1	Walbro	LMH18	NLA	L123S2	LQ54A	S12D2, S14D2
L108	Walbro	LUB1	NLA	L63S1	LQ55	VH4D
L108-1	Walbro	LUB7	NLA	LZ63-2S1	LQ55	VH4D
L108-2	Walbro	LUB8	Serviced	—	LQ55	VH4D
L108-3	Walbro	LUB8	—	Less choke lever	LQ55	VH4D
L108A	Walbro	LUB9	—	Alt. for LZ63-11	—	VH4D
L108B	Walbro	LUB10	Serviced	Alt. for LZ63-16	—	—
L111	Walbro	LUB11	—	L63BL	—	TJD
L111-1	Walbro	LUB15	—	Alt. for LZ63BL	—	TJD
L111-2	Walbro	LUB16	—	Alt. for LZ63BL2	—	TJD
L111-3	Walbro	LUB17	—	Less choke lever	—	TJD
L111-4	Walbro	LUB17	—	LZ63BL14	—	TJD
L115	Walbro	LMH34	—	L119	LQ56	—
L116	Walbro	LMH33	NLA	None	LQ56	W2-880
L118S1	Walbro	LMH43	Serviced	L122S1	LQ57	W2-1235

Carburetors By Part Number (Cont.)

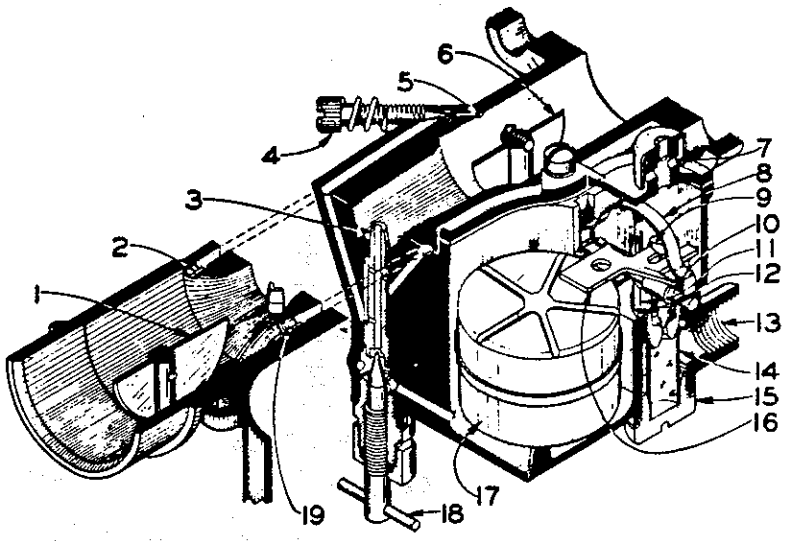
WIS. NO.	VENDOR	VENDOR NO.	STATUS	REPLACEMENT	REPAIR KIT	MODEL
L119S1	Walbro	LMH44	Serviced	L122S1	LQ58	W2-1230
L122S1	Walbro	WHG18	Serviced	L122Cs1	LQ59	W2-1250
L123S1	Walbro	WHG31	Serviced	—	LQ60	S12D, S14D
L122C	Walbro	WHG18B	Serviced	—	LQ59	W2-1230, W2-1235, W2-1250
LTA100	Conversion kit	—	Serviced	LTA101	—	S12D, S14D Carburetor with adapter
LTA101	Conversion kit	—	Serviced	—	—	S12D, S14D

SEE SPB 7-87

L26 Series Wisconsin Motors (Stromberg OH-5/8 Carburetor)

PARTS ILLUSTRATED

1. Choke Valve
2. Idle Air Bleeder
3. Main Discharge Jet
4. Idle Needle Valve
5. Idle Discharge Hole
6. Throttle Valve
7. Float Chamber Vent
8. Float Fulcrum Pin Clip
9. Float Needle Valve
10. Float Fulcrum Pin
11. Float Needle Valve Seat
12. Float Seat Gasket
13. Fuel Inlet
14. Fuel Strainer
15. Fuel Strainer Plug
16. Float Lever
17. Float
18. High Speed Needle Valve
19. High Speed Air Bleeder



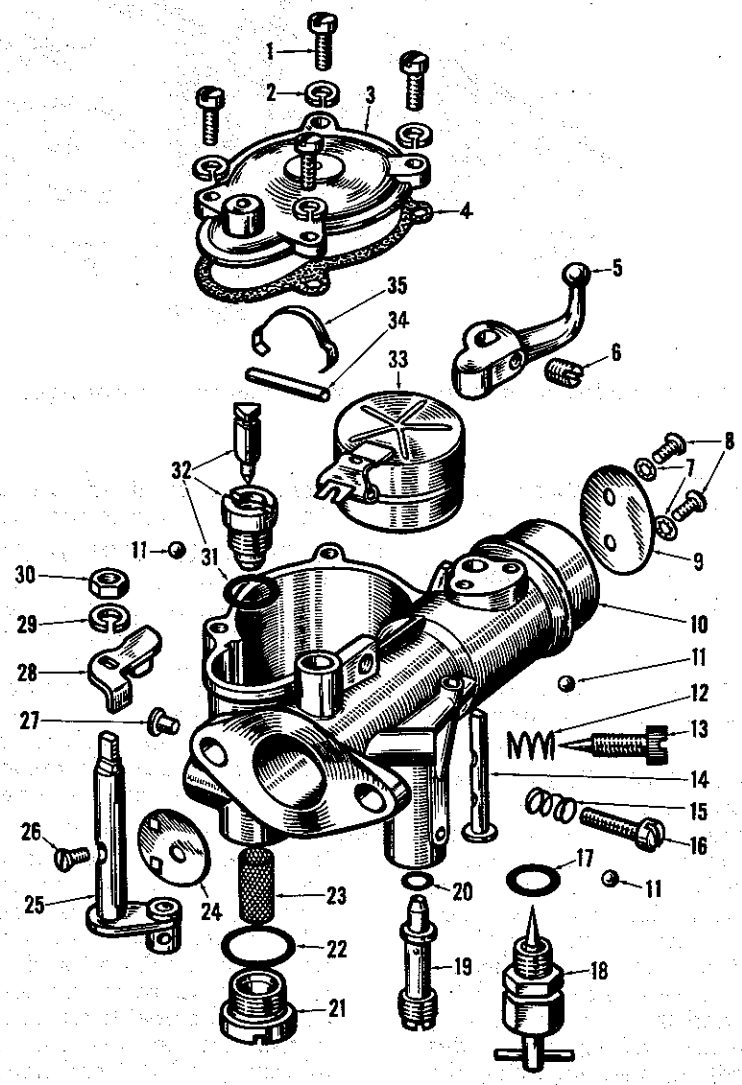
Note—Specifications below are for latest production, previous major changes listed on Parts Page.

GENERAL DESCRIPTION—The Stromberg "OH" series are the horizontal type carburetors which employ the same basic principles as those used in all Stromberg carburetors. Due to its size, and the installations on which it is used, no accelerating pump or economizer is necessary in this series. Adjustable needle valves are incorporated in the unit to assure obtaining the best possible performance and economy under various operating conditions.

ADJUSTMENTS—IDLE OR LOW SPEED—Have the engine well warmed up so that the intake manifold is at least warm to the hand. Close the hand throttle until minimum steady idling speed is reached. Idle needle valve "4" controls the quantity of fuel delivered to the idle discharge hole "5." Turning OUT the needle valve gives a richer mixture and turning it IN gives a leaner mixture. Turn the needle valve in slowly until the engine speed decreases, and then turn out slowly until the engine runs steady and as fast as this throttle position will permit. If, after adjusting the needle valve, the engine idles too fast or too slow, the desired speed can be obtained by setting the throttle stop screw. If a satisfactory adjustment cannot be obtained, see that idle discharge hole "5" is open and is permitting a full flow of fuel.

INTERMEDIATE AND HIGH SPEED—The mixture for intermediate and high speeds is controlled by the adjustable needle "18." For adjusting, follow this procedure: Set the hand throttle about one-third open, turn the adjustment in until the speed of the engine is noticeably cut down, then turn the adjustment out slowly until the fastest and steadiest speed for that throttle position is obtained. This setting should be accurately made to assure obtaining the best possible economy and performance.

FUEL LEVEL—The gasoline level in the float chamber is properly set at the factory and should not be adjusted unless the carburetor has been handled roughly, or level has been changed from some other cause. The level is set at 17/32" below the top of the machined surface of the casting. If it is necessary to reset the level, it can be done by bending the float lever arm "16" at the curve close to the float to give the desired level. The float fulcrum pin "10" and float "17" are held in position by clip "8." When checking position of fuel level, hold clip in place by hand so that the float will be in its normal operating position.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L26 Series Wisconsin Motors (Stromberg OH-5/8 Carburetor)

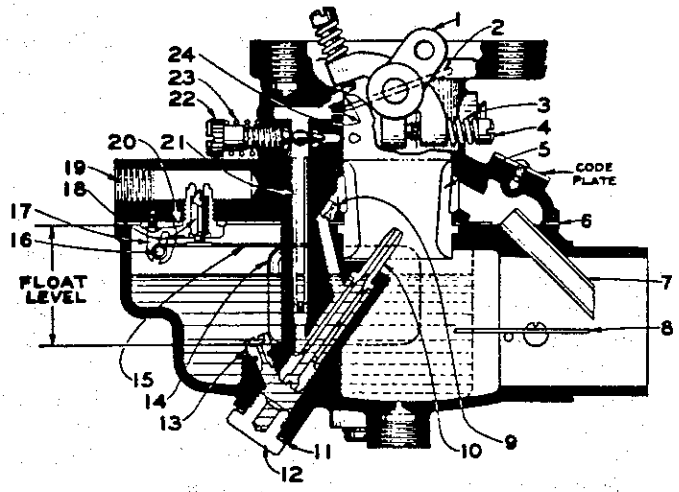
USE WITH MODELS AA, AB, ABN, ACN, AK, AKN, BKN, ABS (see pg. 2)

REF. NO.		DESCRIPTION	OBSOLETE STROMBERG NO. A18000 CODE 25-98 WISCONSIN NO. L26 MODELS AA, AB	OBSOLETE STROMBERG NO. A18010 CODE 25-139 WISCONSIN NO. L26-2 AA, AB, ABN, ACN	OBSOLETE STROMBERG NO. A18020 CODE 25-151 WISCONSIN NO. L26A AK, AKN, BKN	OBSOLETE STROMBERG NO. 425068 WISCONSIN MOTOR NO. L26-10 MODEL ABS
1	†	Screw, float cover	69T11S8-7	69T11S8-7	69T11S8-7	69T11S8-7
2	†	Lock washer, cover screw	69T41-8	69T41-8	69T41-8	69T41-8
3		Cover, float chamber	69P23572	69P23572	69P23572	69P23572
4	††	Gasket, float chamber cover	69P23574	69P23574	69P23574	69P23574
5		Lever assembly, choke	69C106-152	69C106-152	69C106-152	69C106-1526
6		Screw, choke lever set	69T10-11	69T10-11	69T10-11	69T10-11
7	†	Lock washer, choke valve screw	69P20883	69P20883	69P20883	69P20883
8	†	Screw, choke valve	69C140-47	69C140-47	69C140-47	69C140-47
9		Valve, choke	69P22969	69P22969	69P22969	69P22969
10		BODY, MAIN (not serviceable, purchase complete carburetor)				
11	†	Ball, lead	69CR137-36	69CR137-36	69CR137-36	69CR137-36
12		Spring, idle needle valve	69C111-9	69C111-9	69C111-9	69C111-9
13	†	Screw, idle needle	69C46-49	69C46-49	69C46-49	69C46-49
14		Stem and washer, choke	69P22323	69P22323	69P22323	69P22323
15		Spring, idle adjusting screw	69P15301	69P15301	69P15301	69P15301
16		Screw, idle adjusting	69T11S8-10	69T11S8-10	69T11S8-10	69T11S8-10
17	††	Gasket, metering jet	69T56-23	69T56-23	69T56-23	69T56-23
18		Jet, adjustable metering	69C71-21	69C71-21	69C71-21	69C71-21
19		Jet, main discharge	69P23575-54	69P23575-54	69P23575-54	69P23575-54
20	††	Gasket, main discharge jet	69T56-25	69T56-25	69T56-25	69T56-25
21		Plug, gas strainer	69P23587	69P23587	69P23587	69P23587
22	††	Gasket, gas strainer plug	69T56-51	69T56-51	69T56-51	69T56-51
23	†	Strainer, gas	69P23586	69P23586	69P23586	69P23586
24		Valve, throttle	69P23594	69P23594	69P23594	69P23594
25	†	Stem and lever, throttle	69P23588	69P23588	69P23588	69P23588
26	†	Screw, throttle valve	69C136-19	69C136-19	69C136019	69C136-19
27		—	—	—	—	—
28		Stop, throttle	69P23593	P23593	69P23593	69P23593
29		Lock washer, throttle stop nut	69T41-10	69T4-10	69T41-10	69T4-10
30		Nut, throttle stop	69T25S1	69T25S1	69T25S1	69T25S1
31	††	Gasket, float needle valve seat	69P11572	69P11572	69P11572	69P11572
32	†	Valve and seat, float needle	69P23639	69P23639	69P23639	69P23639
33		Float	69P23579	69P23579	69P23579	69P23579
34	†	Pin, float fulcrum	69P23583	69P23583	69P23583	69P23583
35	†	Spring, float fulcrum pin	69P23584	69P23584	69P23584	69P23584
—	†	Bleeder, high speed (not illustrated)	69C67-33-70	69C67-33-70	69C67-33-70	69C67-33-70
—	†	Bleeder, idle air (not illustrated)	69C67-33-56	69C67-33-56	69C67-33-56	69C67-33-56
—	†	Gasket, flange	69QC53	69QC53	69QC53	69QC53
†		Kit, repair parts	RK1028	RK1028	RK1028	— — — —
††		Kit, gasket	382379	382379	382379	382379

L45 Series Wisconsin Motors (Stromberg "UC" Carburetor)

PARTS ILLUSTRATED

1. Throttle Lever
2. Throttle Valve
3. Throttle Lever Stop Screw Spring
4. Throttle Lever Stop Screw
5. Venturi
6. Main Body Gasket
7. Vent Tube
8. Choke Valve
9. High Speed Bleeder
10. Main Discharge Jet
11. Main Jet Plug Gasket
12. Main Jet Plug
13. Metering Jet
14. Float
15. Float Lever
16. Float Fulcrum Pin
17. Float Hanger
18. Float Needle Valve & Seat
19. Gas Inlet
20. Float Needle Valve and Seat Gasket
21. Idle Tube
22. Idle Needle Valve
23. Idle Needle Valve Spring
24. Idle Discharge Holes



Note—Specifications below are for latest production, previous major changes listed on Parts Page.

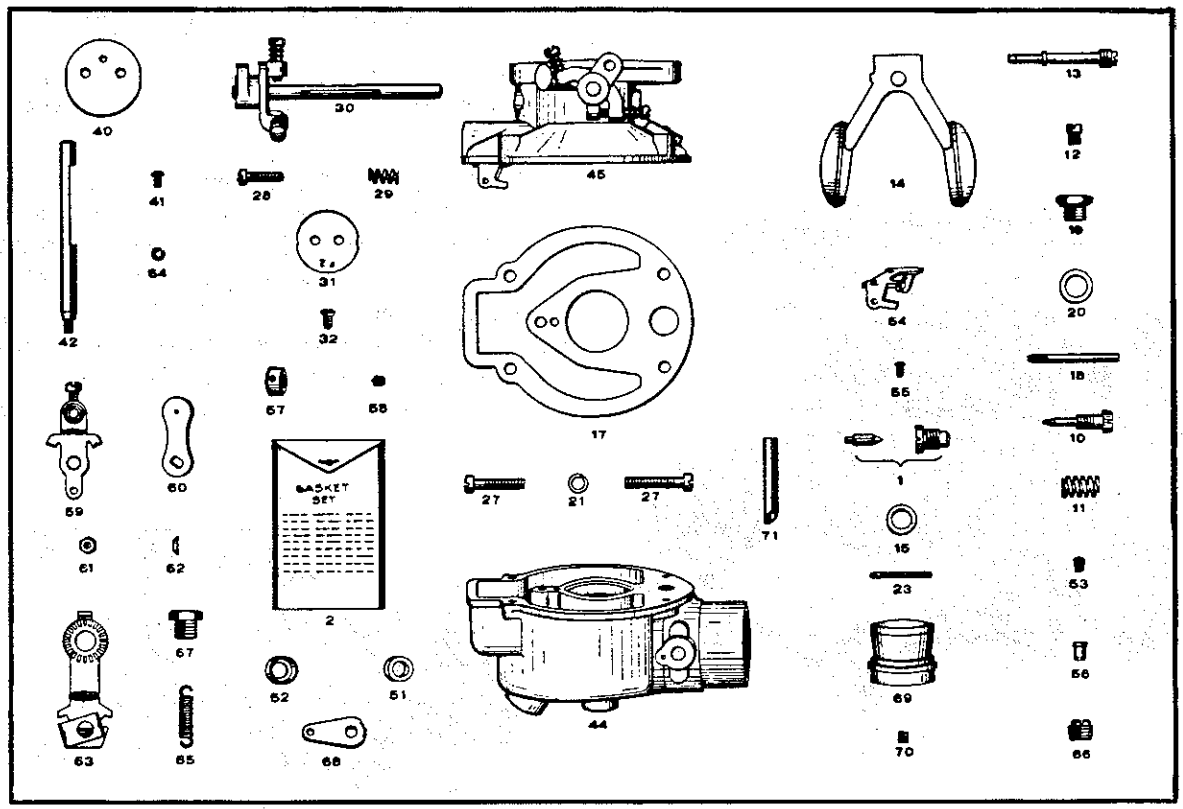
GENERAL DESCRIPTION—The Stromberg "UC" Carburetor is built on the same general principles as those used in all Stromberg carburetors. However, due to its size, no accelerating pump or power system are necessary. The float and float chamber in this unit is somewhat different in construction than that previously used in our up-draft carburetor inasmuch as the float chamber is built concentric to the main discharge jet; thereby, practically surrounding the main metering system with fuel. The carburetor engineered in this manner permits a supply of gasoline to be present at the main discharge jet even though the motor is set at an angle. The float used in this case is of a dual type so constructed that one float operates in each side of the float chamber, and both being connected by means of one and the same lever to the float needle valve. The float mechanism is of the hinge type which assures positive shut-off under all conditions. The carburetor is entirely sealed and all air for venting and bleeders is taken through the air horn. The idling mixture is adjustable while either a fixed metering jet or an adjustable one can be used for the intermediate or high speeds.

ADJUSTMENTS—Idle or Low Speed—Have the engine well warmed up so that the intake manifold is at least warm to the hand. Close the hand throttle until minimum steady idling speed is reached. Turn low speed adjustment "22" gradually to right or left until the engine runs steady and fast as this throttle position will permit. This adjustment operates on air so that screwing it **IN** gives a **RICHER** mixture; **OUT** a **LEANER** one. If after adjusting, the engine idles too fast or too slowly, the desired speed can be obtained by turning throttle stop screw "4." If a satisfactory adjustment cannot be obtained, see that idle discharge holes "24" and idle tube "21" are open and allow a free flow of gas.

Intermediate and High Speed—The mixture for intermediate and high speeds is controlled by either an adjustable metering jet or by the fixed metering jet "13" which is calibrated at the factory to supply the correct amount of fuel. The size of the fixed type jet is stamped on the outer face in decimal parts of an inch. The adjustable jet which is used in some cases can be installed by removing the main discharge jet plug "12" and inserting adjustment. For adjusting mixture when adjustable jet is used, follow this procedure. Set the hand throttle about one-third open, turn the adjustment in until the speed of the engine is noticeably cut down, then turn the adjustment out slowly until the fastest and steadiest speed for that throttle position is obtained.

Fuel Level—The gasoline level in the float chamber is properly set at the factory, and should not be adjusted unless carburetor has been handled roughly or level has been changed from some other cause. The level is set at **"15/32"** to **"17/32"** below the top of the main body. If it is necessary to reset level, it can be done by holding throttle body in inverted position and setting the floats to measure **1-1/4"** from the top of each float to the gasket surface of the throttle body, which will give the approximate fuel level.

L45 Series Wisconsin Motors (Stromberg "UC" Carburetor) (Cont.)



SERVICE REPLACEMENT PARTS LIST

Key No.	Part Name
1	Float Needle Valve and Seat.....(NOT VAR.)
2	Complete Set of Gaskets
10	Idle Needle Valve
11	Spring—Idle Needle Valve
12	Metering Jet.....(VAR.)
13	Main Discharge Jet.....(VAR.)
14	Float Assembly
15	Gasket—Float Needle Valve Seat
17	Gasket—Main Body
18	Idle Tube.....(VAR.)
19	Plug—Main Discharge Jet
20	Gasket—Main Discharge Plug
21	Lockwasher—Main Body Attach. Screw
23	Fulcrum Pin—Float
27	Screw—Main Body Attach. (Short)
27	Screw—Main Body Attach. Choke Lever Spring Clip (Long)
28	Screw—Throttle Stop
29	Spring—Throttle Stop Screw
30	Throttle Lever and Shaft
31	Throttle Valve
32	Screw—Throttle Valve Attach.
40	Choke Valve
41	Screw—Choke Valve Attach.
42	Choke Stem and Lever
44	Main Body
45	Throttle Body (Complete with Idle Holes Throttle Stem and Valve).....(VAR.)

Key No.	Part Name
51	Felt Packing
52	Retainer—Felt Packing
53	Channel Plug
54	Float Hanger
55	Drive Screw—Float Hanger
56	Channel Plug
59	Choke Lever (Wire Conn.)
60	Choke Lever
61	Nut—Choke Lever Attach.
62	Lockwasher—Choke Lever Attach. Nut
63	Choke Tube Holder
	Clamp Screw
	Clamp Screw Nut
64	Lockwasher—Choke Valve Attach. Screw
65	Spring—Choke Valve Return
66	Pipe Plug
67	Screw—Bracket Assembly
68	Spring Clip
69	Venturi.....(VAR.)
70	High Speed Bleeder.....(VAR.)
71	Vent Tube
72	Main Disch. Jet Gasket (Not Illustrated)
73	Flange Gasket (Not Illustrated)
74	Pin—Spring (Not Illustrated)
75	Washer—Lever Spacer (Not Illustrated)

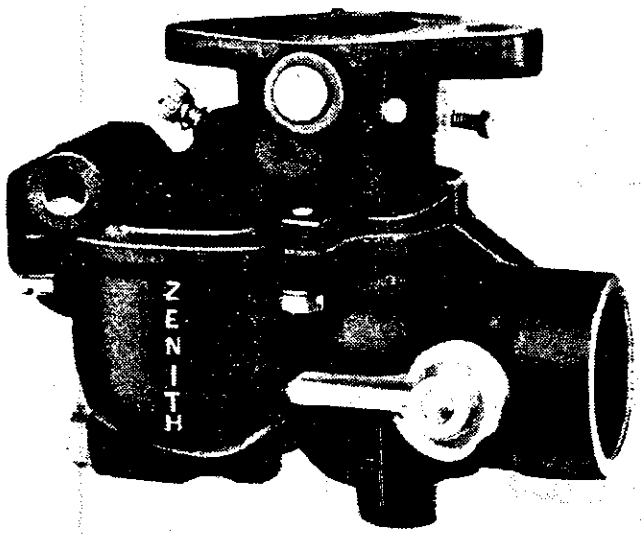


Figure 1

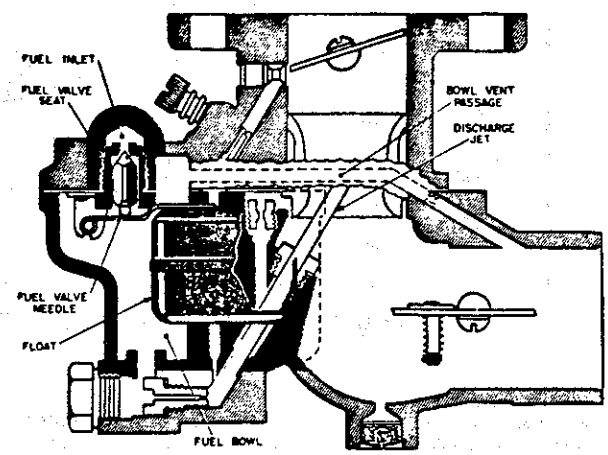
The Zenith 61 and 161 Series carburetors are of updraft single venturi design. They are made in 5/8" and 7/8" S.A.E. barrel sizes; with 5/8", 7/8", 1" and 1¼" S.A.E. flange sizes available. They are made with selective fuel inlet, with or without a back suction economizer and a main jet adjustment.

They are "balanced" and "sealed", and the semi-concentric fuel bowl allows operation to quite extreme angles without flooding or starving. This design makes them particularly adaptable to smaller farm tractors and a great variety of agricultural machines and industrial units.

FUEL SUPPLY SYSTEM

The fuel supply system is made up of the threaded fuel inlet, the fuel valve seat, fuel valve, float and fuel bowl.

The fuel supply line is connected to the threaded inlet. The fuel travels through the fuel valve seat and passes around the fuel valve and into the fuel bowl. The level of the fuel in the fuel chamber is regulated by the float through its control of the fuel valve. The fuel valve does not open and close alternately but assumes an opening, regulated by the float, sufficient to maintain a proper level in the fuel chamber equal to the demand of the engine according to its speed and load.



FUEL SUPPLY SYSTEM

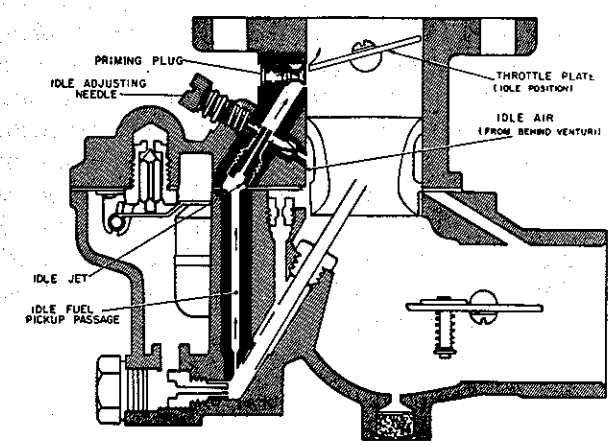
Figure 2

The inside bowl vent as illustrated by the passage originating in the air intake and continuing through to the fuel bowl, is a method of venting the fuel bowl to maintain proper air fuel mixtures even though the air cleaner may become restricted. This balancing is frequently referred to as an "inside bowl vent."

IDLE SYSTEM

The idle system consists of the idle discharge port, idle air passage, idle adjusting needle, idle jet, and fuel passage.

The fuel for idle is supplied through the main jet to a well directly below the main discharge jet. The pick-up passage is connected to this well by a restricted drilling at the bottom of this passage. The fuel travels through this channel to the idle jet calibration. The air for the idle mixture originates back of (or from behind) the main venturi. The position of the idle adjusting needle in this passage controls the suction on the idle jet and thereby the idle mixture. Turning the needle in closer to its seat results in a greater suction with a smaller amount of air and therefore a richer mixture. Turning the needle out away from its seat increases the amount of air and reduces the suction, and a leaner mixture is delivered. The fuel is atomized and mixed with the air in the passage leading to the discharge port (or priming plug) and enters the air stream at this point.

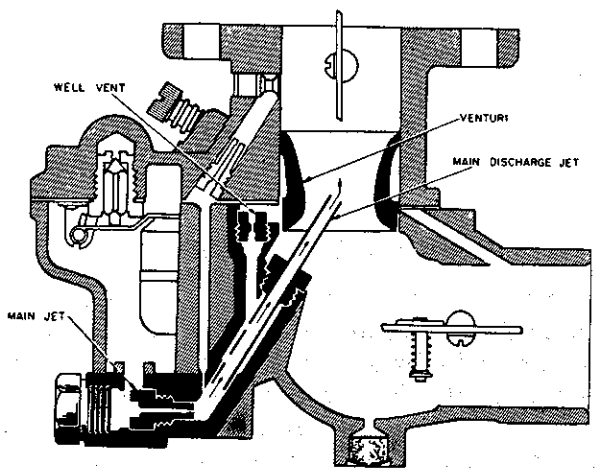


IDLE SYSTEM

Figure 3

HIGH SPEED SYSTEM

The high speed system controls the fuel mixture at part throttle speeds and at wide open throttle. This system consists of a **venturi,** controlling the maximum volume of air admitted into the engine; the **main jet,** which regulates the flow of fuel from the float chamber to the main discharge jet; the **well vent,** which maintains uniform mixture ratio under changing suction



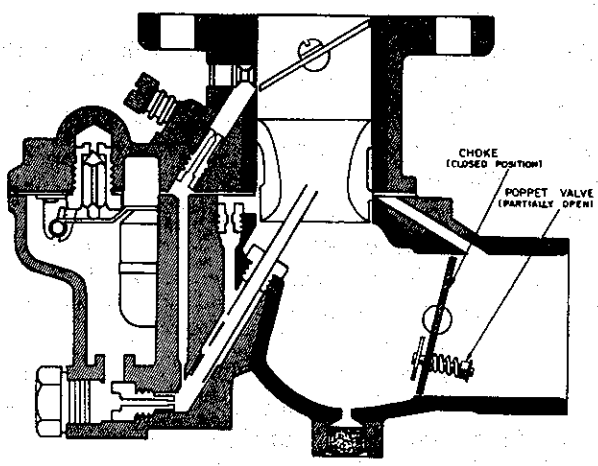
HIGH SPEED SYSTEM

Figure 4

and engine speeds; and a **main discharge jet**, which delivers the fuel into the air stream.

The main jet controls the fuel delivery during the part throttle range from about one-quarter to full throttle opening. To maintain a proper mixture ratio a small amount of air is admitted through the well vent into the discharge jet through the air bleed holes in the discharge jet at a point below the level of fuel in the metering well.

The passage of fuel through the high speed system is not a complicated process. The fuel flows from the fuel chamber through the main jet and into the main discharge jet where it is mixed with air admitted by the well vent, and the air-fuel mixture is then discharged into the air stream of the carburetor.



CHOKE SYSTEM

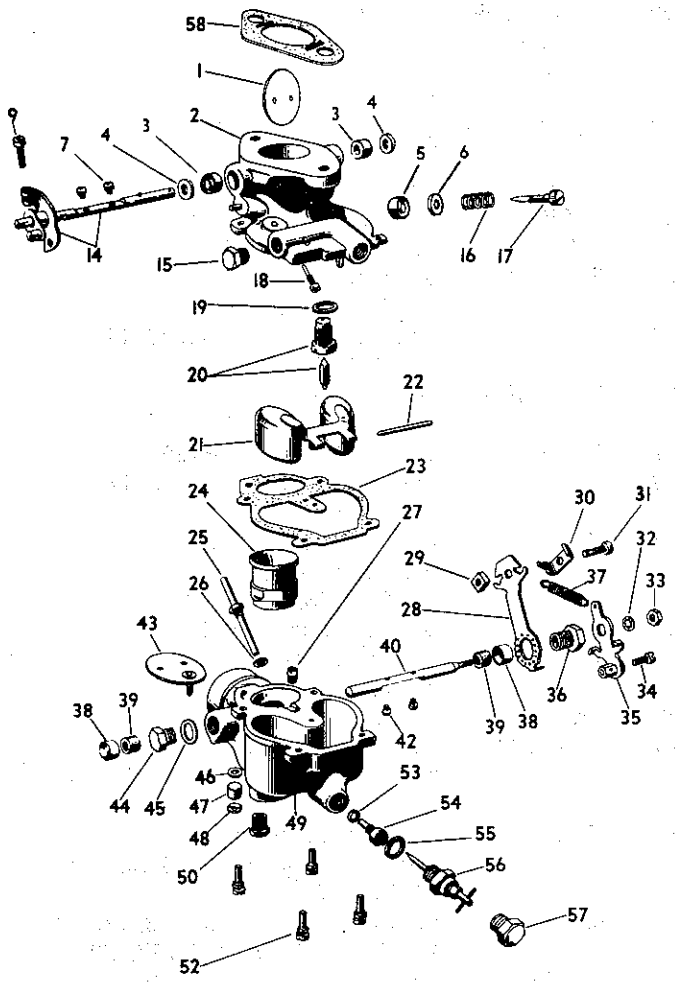
Figure 5

CHOKE SYSTEM

The choke system consists of a valve mounted on a shaft located in the air entrance and operated externally by a lever mounted on the shaft. The choke valve is used to restrict the air entering the carburetor. This increases the suction on the jets when starting the engine. The choke valve is of a "semi-automatic" type, having a poppet valve incorporated in its design, which is controlled by a spring.

The poppet valve opens automatically when the engine starts and admits air to avoid **over-choking** or **flooding** of the engine. The mixture required for starting is considerably richer than that needed to develop power at normal temperatures. As the engine fires and speed and suction are increased, the mixture ratio must be rapidly reduced. This change is accomplished through adjustment of the choke valve and the automatic opening of the poppet valve to admit more air when the engine fires.

Zenith Model 161-7 Carburetor



CARB. REF. NO.	ZENITH ASSEMBLY NO.	WISCONSIN PART NO.
1	10034E	L48, L63S1
2	S717	L48-1
3	S632B	L48-2 (use L63S1)
4	S732	L48-3
5	S1164	L48B
6	S1329	L48C, L63CS1
7	S1548	L48D (NLA) can use L63ES1 with BI291-6S1
8	10741	L48E, L63JS1
9	10457	L48F, L63BUS1
10	10748	L48G
11	10535	L48H, L63V
12	10595	L48J, L63CS1
13	10610	L48K (NLA), L63AS1
14	10627	L48L
15	10788	L48M
16	10737	L48N (use L63BVS1)
17	10816	L48P
18	10926	L48Q
19	10858	L48U
20	10907	L48V
21	10932	L48Y
22	10955	L48Z
23	11003	L48AA, L63KS1
24	11206	L48AB
25	11372	L48AC
26	11595	L48AD
27	11494	L48AE
28	11593	L48AL
29	12095	L48BF and L63S1, L48BPS1 use

ITEM	ZENITH PART NO.	DESCRIPTION
1	93C21-176	Plate, throttle
2	— — —	Body, throttle (not serviceable, purchase complete carburetor)
3	93T48-9	Seal, shaft packing
4	93T52-57	Retainer, shaft seal
5	93CT48-8	Seal, idle needle (for 27)
6	93CT52-1	Retainer, needle seal (for 27)
7	93T315S5-3	Screw, throttle plate

ITEM	ZENITH PART NO.	DESCRIPTION
9	93T8S8-10	Screw, throttle stop (for all except 19, 24, 26-28)
9	93T8S8-12	Screw, throttle stop (for 24, 26-29)
9	93T8B10-15	Screw, throttle stop

(continued on page 10)

Zenith Model 161-7 Carburetor (Cont.)

ITEM		ZENITH PART NO.	DESCRIPTION
—		93C111-19	Spring, throttle stop screw (for 19)
14		93C29-491	Shaft and lever, throttle (for 1-8, 12, 14, 15, 17, 18, 24, 27, 29)
14		93C29-858	Shaft and lever, throttle (for 9, 16, 21)
14		93C29-875	Shaft and lever, throttle (for 11, 13)
14		93C29-926	Shaft and lever, throttle (for 10, 22, 23, 25, 26, 28)
14		93C29-28S	Shaft and lever, throttle (for 19)
14		93C29-963	Shaft and lever, throttle (for 20)
15		93T91-3	Plug, fuel inlet (1/8" pipe)
16		93C111-9	Spring, adjusting needle (for all except 6, 12, 19, 24, 27, 29)
16		93C111-17	Spring, adjusting needle (for 6, 12, 24, 27)
16		93C111-17	Spring, adjusting needle (for 19)
17	†	93C46-25	Needle, idle adjusting (for all except 6, 12, 19, 24, 27) (NLA)
17		93C46-6	Needle, idle adjusting (for 6, 12, 24)
17		93C46-32	Needle, idle adjusting (for 27)
17		93C46-48	Needle, idle adjusting (for 19)
18	†	93C55-6-12	Jet, idle (for all except 6, 12, 19, 24, 27, 29)
18	†	93C55-22-13	Jet, idle (for 6, 12, 19, 24, 27)
19	†	93T56-20	Washer, fuel valve seat
20	†	93C81-17-35	Valve and seat, fuel (for 1-11, 13, 16, 17, 20-23, 29)
20	†	93C81-50-35	Valve and seat, fuel (for 12, 14, 15, 18, 19, 24-28)
21		93C85-28	Float
22	†	93C120-4	Axle, float
23	†	93C142-16	Gasket bowl to body
24		93C38-51-16	Venturi (for 7, 9, 10, 14, 16-18, 23, 25, 28)
24		93C38-51-19	Venturi (for 1-5, 11, 20, 29)
24		93C38-51-17	Venturi (for 21, 22, 26)
24		93C38-51-18	Venturi (for 6, 8, 12, 13, 15, 19, 24, 27)
25		93C66-47-40	Jet, discharge (for 7, 8, 14, 15, 17, 18)
25		93C66-47-45	Jet, discharge (for 11)
25		93C66-47-50	Jet, discharge (for 3-5, 29)
25		93C66-47-60	Jet, discharge (for 1, 2, 20)
25		93C66-47-6-40	Jet, discharge (for 6, 12, 19, 24, 27)
25		93C66-50-40	Jet, discharge (for 9, 10, 16, 21-23, 25, 26, 28)
25		93C66-50-45	Jet, discharge (NLA) (for 13)
26	†	93T56-52	Washer, discharge jet
27		93C77-18-13	Jet, well vent (for 2, 20)
27		93C77-18-14	Jet, well vent (for 6, 12, 19, 24, 27)
27		93C77-18-17	Jet, well vent (for 8-11, 13, 15, 16, 21-23, 25, 26, 28)
27		93C77-18-15	Jet, well vent (for 1, 7, 14, 17, 18)
27		93C77-18-22	Jet, well vent (for 3-5, 29)
28		93C109-2	Bracket, choke (for 1-8, 12, 14, 15, 17, 18, 20, 24, 27)
28		93C109-2-1	Bracket, choke (for 29)
28		93C109-63	Bracket, choke (for 9-11, 13, 16, 21)
28		93C109-13	Bracket, choke (for 19)
28		93C109-63	Bracket, choke (for 22, 23, 25, 26)
28		93C109-46	Bracket, choke (for 28)
29		93T21S8	Nut, tube clamp screw (for 1-8, 12, 14, 15, 17, 18, 20, 24, 28, 29)
30		93C110-1	Clamp, bracket tube (for 1-8, 12, 14, 15, 17, 18-20, 24, 26, 27-29)
31		93T1S8-10	Screw, tube clamp (for 1-8, 12, 14, 15, 17, 28, 20, 24, 26, 27, 28)
31		93T1B8-10	Screw, tube clamp (for 19)
31		93T8S8-10	Screw tube clamp (for 29)
32		93T45-8	Lock washer, shaft nut (for 1-8, 12, 14, 15, 17-20, 24, 27-29)
32		93T41-10	Lock washer, shaft nut for 9-11, 13, 16, 21-23, 25, 26)
33		93T22S8	Nut, choke shaft (for 1-8, 12, 14, 15, 17, 18, 20, 24, 27-29)
33		93T22S10	Nut, choke shaft (for 9-11, 13, 16, 21-23, 25, 26)
33		93T22B8	Nut, choke shaft (for 19)

(continued on page 11)

Zenith Model 161-7 Carburetor (Cont.)

ITEM		ZENITH PART NO.	DESCRIPTION
34		93T8S8-8	Screw, lever swivel (for 1-8, 10, 12, 14, 15, 17, 18, 20, 24, 26, 27, 29)
34		93T1S8-6	Screw, lever swivel (for 28)
34		93T1B8-6	Screw, lever swivel (for 19)
35		93C106-2	Lever, choke (for 1-8, 12, 14, 15, 17, 18, 20, 24)
35		93C106-157	Lever, choke (for 9-11, 13, 16, 21-23, 25, 26)
35		93C106-57	Lever, choke (for 19)
35		93C106-17	Lever, choke (for 28)
35		93C106-186	Lever, choke (for 27)
35		93C106-2	Lever, choke (for 29)
36		93C140-2	Screw, bracket (for all except 19, 28, 29)
36		93C140-20	Screw, bracket (for 19)
36		93C140-7	Screw, bracket (NLA) (for 28)
37		93C112-6	Spring, lever return (for 1-8, 12, 14, 15, 17-20, 24, 28, 29)
37		93C112-11	Spring, lever return (for 9-11, 13, 16, 21-23, 25, 26)
37		93C117-68	Spring lever return (for 27)
38		93CT48-7	Seal, choke shaft (for 27)
39		93CT52-13	Retainer, choke shaft (for 27)
40		93C105-257	Shaft, choke (for 1-8, 12, 14, 15, 17-20, 24, 28, 29)
40		93C105-298	Shaft, choke (for 27)
40		93C108-107	Shaft and lever, choke (for 9-11, 13, 16, 21-23, 25, 26)
42		93T315B5-3	Screw, choke plate
43		93C101-17	Plate, choke (for 1-5, 7, 9, 10, 11, 13, 14, 16, 20, 21)
43		93C101-60	Plate, choke (for 6, 8, 12, 15, 17, 18, 22, 23, 25, 26, 28)
43		93C102-110	Plate, choke (for 24, 27, 29)
44		93C138-24	Plug, choke shaft hole (for 1-8, 12, 14, 15, 17-20, 24, 27-29)
45	†	96T52-7	Washer, shaft hole plug (for 1-8, 12, 14, 15, 17-20, 24, 27-29)
46		93T52-7	Washer, intake drain
47	†	93T57-12	Washer, drain felt
48		93CT93S51	Retainer, felt washer
49		93B3-85A	Bowl, fuel (for 1-5)
49		93B3-85AB1	Bowl, fuel (for 29)
49		93B3-85L	Bowl, fuel (for 7, 8, 10, 14, 15, 17, 18)
49		93B3-85L1	Bowl, fuel (for 6, 12, 19, 22, 23, 25, 26)
49		93B3-85L5	Bowl, fuel (for 28)
49		93B3-85R1	Bowl, fuel (for 9, 11, 13, 16, 21)
49		93B3-85H2	Bowl, fuel (for 20)
49		93B3-112-1	Bowl, fuel (for 24)
49		93B3-112B2	Bowl, fuel (for 27)
50		93T91-3	Plug, bowl drain (1/8" pipe)
52		93T301S10-10	Screw, bowl to body
53	†	93T56-24	Washer, main jet (NLA)
54		93C52-6-1-18	Jet, main (for 7, 14, 16)
54		93C52-6-19	Jet, main (for 23)
54		93C52-6-1-21	Jet, main (for 6, 12, 19, 24, 27)
54		93C52-6-23	Jet, main (for 1, 13)
54		93C52-6-24	Jet, main (for 2, 20)
54		93C52-6-25	Jet, main (for 17, 18)
54		93C52-6-26	Jet, main (for 3, 8, 15, 29)
54		93C52-6-28	Jet, main (for 4, 5)
54		93C52-6-30	Jet, main (for 9, 10, 21, 22, 25, 26, 28)
54		93C52-6-33	Jet, main (for 11)
55	†	93PH499	Washer, passage plug (or adjustment)
56		93C71-21	Adjustment, main jet (for 2, 4, 5, 8-11, 13, 15, 17, 18, 20-22, 25, 26, 28)
57		93C138-24	Plug, main jet passage (for 1, 3, 6, 7, 12, 14, 16, 23, 24, 27)
57		93C138-52	Plug, main jet passage (for 19)
57		93C138-24	Plug, main jet passage (for 29)
58	†	93C141-4-5	Gasket, flange (not in C181-66 gasket set)
—		C24-54PX2	Lever and swivel, throttle clamp (for 19)
—		93C63-168	Tube, idle channel filler (for 26-28)
—		93C181-66	Gasket set
—		93LQ36	Repair kit (for 12, 14, 15, 18, 19, 24-28)
—		LQ38	Repair kit (for 1-11, 13, 16, 17, 20-23, 29)

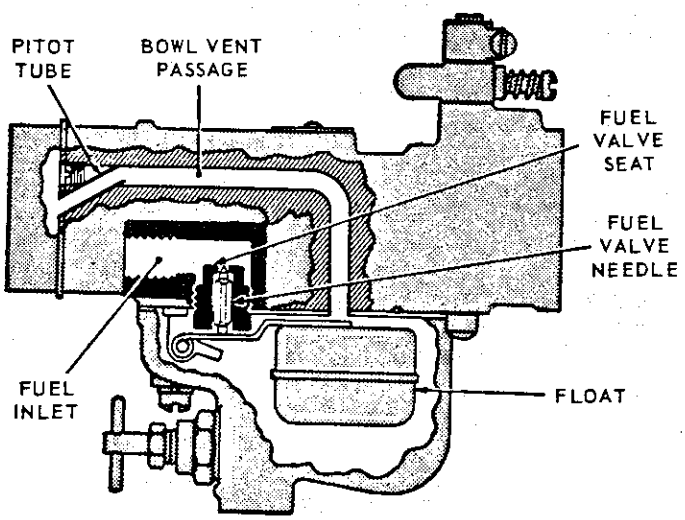
† Items included in repair kit

L51 Series (Zenith Model 87 Carburetor)

The Zenith 87-Series is a horizontal carburetor with a concentric fuel bowl. It is a "balanced" carburetor, because all air for fuel chamber and metering well ventilation and idling must come through the air cleaner. Air cleaner restrictions have a minimum influence on the fuel-air ratio when a carburetor is thus "balanced".

The main jet and discharge jet are centrally located. The metering well which completely surrounds the discharge jet is in the center of the fuel bowl assembly. This construction permits extremely high angle operation in any direction.

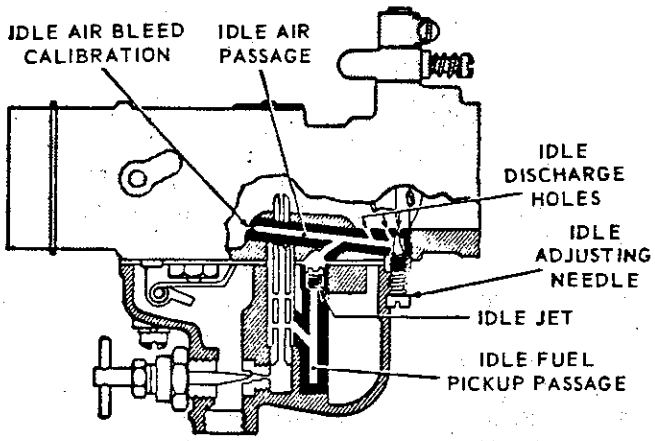
The venturi, which is part of the throttle body casting, measures the volume of air that passes through the carburetor. In selecting the venturi size, the smallest size that will permit full power development should be used.



FUEL SUPPLY SYSTEM

FUEL SUPPLY SYSTEM. Fuel under normal pressure entering the float chamber through the fuel valve seat is controlled by the twin float which, moving on its axle, closes the needle valve when the fuel reaches the proper level in the bowl.

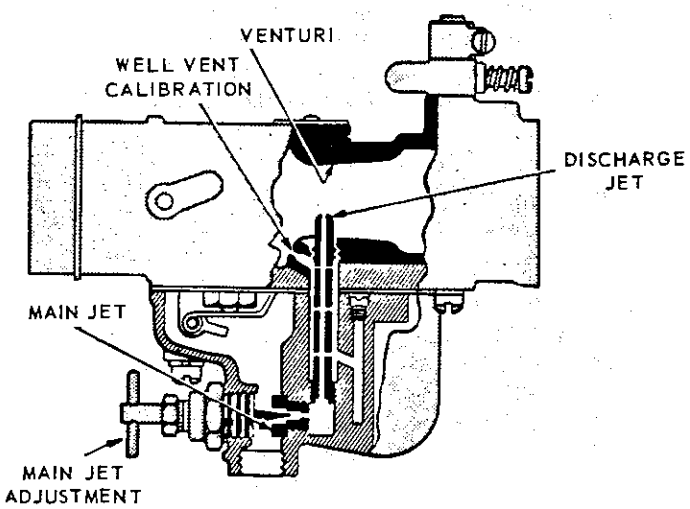
IDLING SYSTEM. At idling speeds the throttle plate is almost closed, thus a very high suction exists at the edge of the throttle plate. At this point the idle discharge orifices are located. All fuel for idling and part throttle operation is supplied through the main jet. Fuel from the float chamber flows through the main jet into the metering well. Fuel for idling is drawn from this well through the calibration, or metering orifice, in the center of the idling jet. As the fuel reaches the idling channel it is mixed with air which is admitted through a calibrated orifice in the channel



IDLE SYSTEM

from the inside of the air intake to form an emulsion. This emulsion is discharged into the air stream, to form the idling mixture, through two holes, one of which is controlled by the idle adjusting needle. Turning the adjusting needle counter-clockwise (out) permits more of the emulsion to reach the air stream and make the idling mixture richer while turning the needle in (clockwise) cuts off the amount of the emulsion reaching the air stream and makes the mixture leaner.

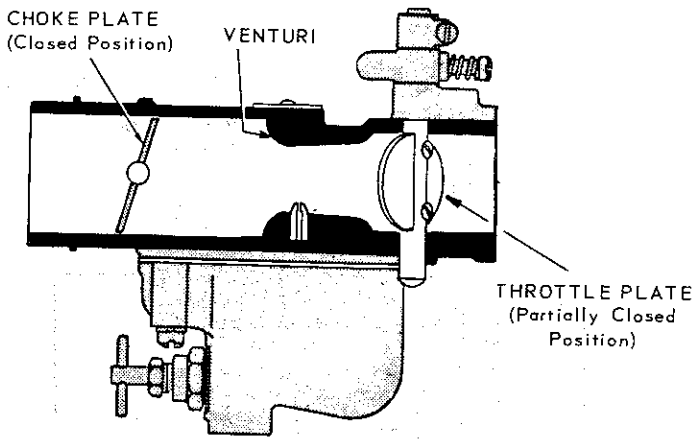
HIGH SPEED SYSTEM. As the throttle is opened, the suction on the idling system diminishes, but the increased volume of air entering the engine through the venturi creates sufficient vacuum (suction) on the discharge jet to draw an emulsion of fuel and air from the metering well which receives its fuel from the main jet and its air from the well vent. The flow characteristics of the discharge jet are influenced by the size, location, and number of



HIGH SPEED SYSTEM

holes in the sides of that part of the jet which is in the metering well, as well as by the sizes of the discharge jet orifice, the size of the main jet, and the size of the well vent. The well vent is located in the air intake and permits air to enter the top of the metering well around the outside of the discharge jet. The flow of fuel through the main jet is controlled by the main jet adjustment.

CHOKE SYSTEM. Starting a cold engine requires a much richer mixture of fuel and air. Moving the choke lever to close the choke plate restricts the air entering the carburetor, except at the pitot tube to the bowl vent, and increases the suction on the idling system which makes the mixture richer.



CHOKE SYSTEM

Adjust the main jet adjustment for full power of the engine while under a load. Turning the adjusting needle out (counter-clockwise) makes the mixture richer while turning the needle in (clockwise) cuts off the flow of fuel to make the mixture leaner.

NOTE: Do not try to operate on a very lean mixture; better performance and better fuel economy will be obtained if the mixture is not too lean.

STARTING THE ENGINE. Before cranking the engine, the carburetor throttle should be opened a little to expose both idle discharge ports to suction. The choke should be fully closed until the engine starts, then opened a little to prevent stalling from being over-choked, then when the engine is fully warmed up the choke can be returned to wide open position and the throttle closed to the idling position.

ADJUSTMENTS. Adjust the throttle stop screw to obtain the desired idling speed by turning the screw in (clockwise) to increase the speed and out (counter-clockwise) to decrease the engine speed.

Adjust the idle adjusting needle to obtain smooth idling of the engine at idling speed. Turn the needle out (counter-clockwise) to make the mixture richer, and in (clockwise) to make it leaner.

DISASSEMBLY

A. IDENTIFY CARBURETOR

(a) Check numbers on metal identification disk riveted to top of throttle body. The inside number next to the rivet is the Zenith assembly number and the one next to the outer edge of the disk is the vehicle manufacturer's.

B. DISASSEMBLED VIEWS

(a) The disassembled view will identify the various component parts and show the relation to assembly. Use the disassembled view to identify and locate parts when performing the disassembly and reassembly operations.

C. SEPARATE CARBURETOR BODIES

(a) Remove the three bowl assembly screws (37 & 38) and lockwashers (36) and separate fuel bowl (30) from throttle body (9).

D. DISASSEMBLE FUEL BOWL

(a) Remove the main jet adjustment (34) and fibre washer (33), using a 9/16" open end wrench.
(b) Remove the main jet (32) and fibre washer (31), using Zenith Tool No. C161-83 main jet wrench.
(c) Remove the Idle Jet (29), using a small screwdriver.
(d) Remove the bowl drain plug (35).

E. DISASSEMBLE THROTTLE BODY

(a) Remove the float axle (26) by pressing against the end with the blade of a screwdriver.
(b) Remove the float (27).
(c) Remove the fuel valve needle (25), using the fingers.
(d) Remove the fuel bowl to throttle body gasket (28).
(e) Remove the main discharge jet (23), using a small screwdriver.
(f) Remove the fuel valve seat (25) and fibre washer (24), using Zenith Tool No. C161-85.
(g) Remove the idle adjusting needle (11) and spring (10).

CLEAN AND INSPECT PARTS

A. CLEAN PARTS

(a) Clean all metal parts thoroughly with cleaning solution and rinse in solvent.

(b) Blow out all passages in the air intake assembly, fuel bowl assembly and throttle body. NOTE: Be sure all carbon deposits have been removed from throttle bore and idle discharge holes. It is advisable to reverse flow of compressed air in all passages to insure all dirt has been removed Never use a wire or drill to clean out jets.

B. INSPECT PARTS

(a) **Float Assembly.** Replace float assembly if loaded with gasoline, damaged, or if float axle bearing is worn excessively. Inspect top side of float lever for wear where it contacts fuel valve needle.

(b) **Float Axle.** Replace if any wear can be visually detected on the bearing surface.

(c) **Fuel Valve Seat & Needle Assembly.** Replace fuel valve seat and needle because both parts wear and may cause improper float level.

(d) **Idle Adjusting Needle and Spring.** Inspect point of needle. This must be smooth and free of ridges.

(e) **Gaskets and Fibre Washers.** Replace all gaskets and fibre washers every time the carburetor is disassembled.

(f) **Check Specifications.** Verify the correctness of the following parts. Numbers will be found on the parts. **Venturi; Main Jet; Idling Jet;** and **Fuel Valve Seat.**

REASSEMBLY

A. REASSEMBLE THROTTLE BODY

(a) Install the fuel valve seat (25) and fibre washer (24), using Zenith Tool No. C161-85.

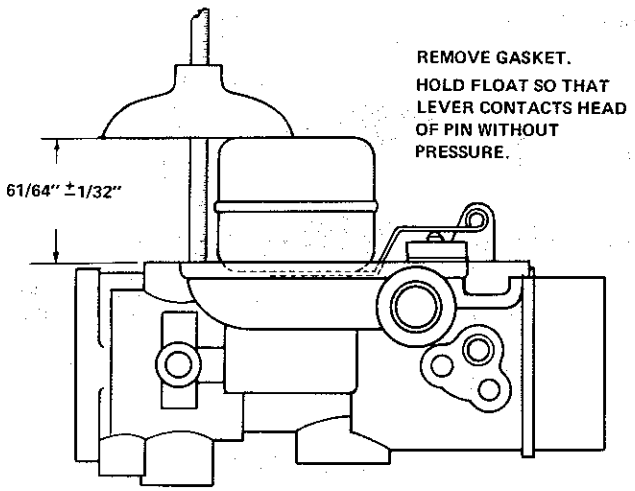
(b) Install the main discharge jet (23), using a small screwdriver.

(c) Install fuel valve needle (25), in seat (25), followed by float (27) and float axle (26). NOTE: Insert tapered end of float axle (26) into float bracket on side opposite slot and push through the other side. Press float axle (26) into slotted side until the axle is centered in bracket.

(d) **Fuel Level.** Check position of float assembly for correct measurement to obtain proper fuel level using a depth gage. **NOTE: Do not bend, twist, or apply pressure on the float body.**

(e) With bowl cover assembly in an inverted position, viewed from free end of float, the float body must be centered and at right angles to the machined surface. The **float setting** is measured from the machined surface (no gasket) of float bowl cover to top side of float body at highest point. This measurement should be **61/64"**, plus or minus **1/32"**.

(f) **Bending Float Lever.** To increase or decrease distance between float body and machined surface use long nosed pliers and bend lever close to float body.
NOTE: Replace with new float if position is off more than 1/16".



FLOAT SETTING

(g) Install throttle body to fuel bowl assembly gasket (29) on machined surface of throttle body (9).

(h) Install the idle adjusting needle (11) and spring (10).

B. REASSEMBLE FUEL BOWL

(a) Install the main jet (32) and fibre washer (31), using Zenith Tool No. C161-83 main jet wrench.

(b) Install the main jet adjustment (34) and fibre washer (33), using a 9/16" open end wrench.

(c) Install the idle jet (29), using a small screwdriver.

(d) Install the bowl drain plug (35).

C. REASSEMBLE CARBURETOR BODIES

(a) Install the three bowl assembly screws (38) and lockwashers (36) through the fuel bowl and into the throttle body and draw down firmly and evenly.

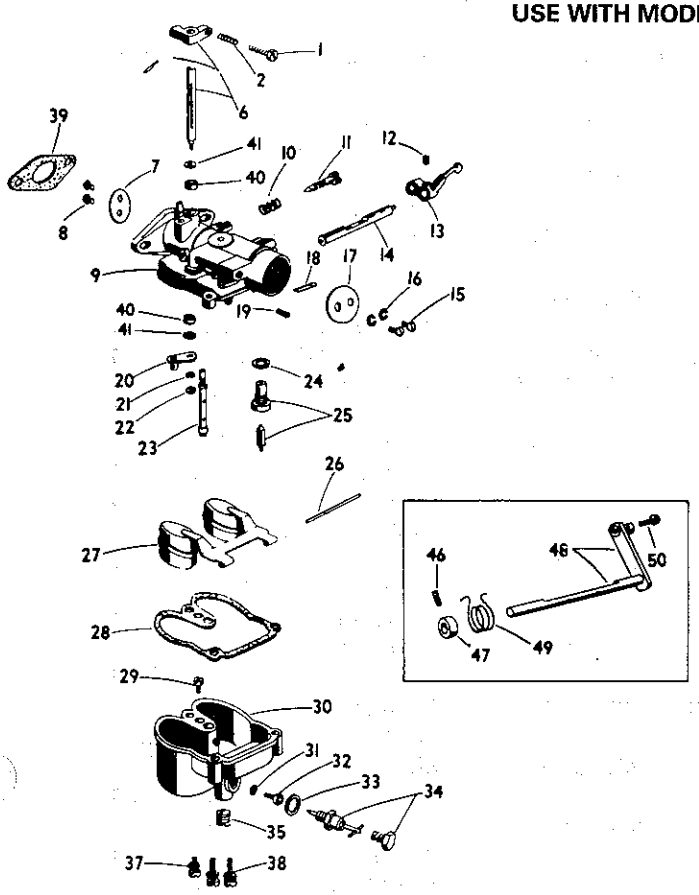
SPECIAL TOOLS

The special tools recommended for the 87-Series carburetors are:

1. C161-83 Main Jet Wrench.
2. C161-85 Fuel Valve Seat Wrench.

L51 Series (Zenith Model 87 Carburetor)

USE WITH MODELS ACN, BKN, VF4D



CARB. REF.	ZENITH ASSEMBLY NO.	WISCONSIN PART NO.
1	10223	L51
2	10258	L51A, L51ES1
3	S1151	L51B
4	10730	L51C
5	1193 OR (5A) 11026	L51E
6	11194 OR (6A) 11027	L51F
7	10956	L51G
8	11385	L51H
9	11412	L51J
10	11484	L51K
11	12025	L51L
12	12539	L52M

* L51QS1 can use LS1FS1 with 93C81-17-25

ITEM	PART NO.	DESCRIPTION	QTY
1	93T18S8-10	Screw, stop lever	1
2	93C111-10	Spring, stop screw	1
6	93C29-1313	Shaft and lever, throttle (for 4, 7)	1
—	93C29-1120	Shaft and lever, throttle (for 2, 3, 5, 5A, 6, 6A, 8-10)	1
—	93C29-1313	Shaft and lever, throttle (for 1, 7, 11)	1
—	93C29-1439	Shaft and lever, throttle (for 12)	1
7	93C21-157	Plate, throttle (for 1, 4, 7, 11)	1
—	93C21-159	Plate, throttle (for 2,3)	1
—	93C21-182	Plate, throttle (for 5, 5A, 6, 6A, 8-10, 12)	1
8	93C136-1	Screw, throttle plate (for 4)	1
—	93T315S5-3	Screw, throttle plate for 1-3, 5, 5A, 6, 6A, 7-12)	2
9	———	Body, throttle (not serviceable, purchase complete carburetor)	1
10	93C111-155	Spring, adjustment needle	1
11 †	93C46-49	Needle, idle adjustment	1
12	93T10-11	Screw, choke lever set (NLA) (for 2, 3, 5, 5A, 6, 6A, 8-10, 12)	1
13	93C106-152	Lever, choke (for 2, 3, 5A, 6A)	1
—	93C106-182	Lever, choke (for 5, 6, 8-10, 12)	1

(continued on page 16)

L51 Series (Zenith Model 87 Carburetor) (Cont.)

USE WITH MODELS ACN, BKN, VF4D (see pg. 15)

ITEM	PART NO.	DESCRIPTION	QTY
14	93C105-208	Shaft, choke (for 2, 3, 5A, 6A)	1
15	93C140-47	Screw, choke plate, with L.W. (NLA)	2
17	93C102-87	Plate, choke (for 1-4, 7, 11)	1
—	93C102-104	Plate, choke (for 5, 5A, 6, 6A, 8-10, 12)	1
18	93C63-140	Tube, bowl vent	1
19	93T10-10	Screw, vent tube set	1
20	93C25-120	Lever, throttle (NLA) (for 2, 3)	1
—	93C25-148	Lever, throttle (for 5, 5A, 6, 6A, 8-10, 12)	1
21	93T41-10	Lock washer, shaft nut (for 2, 3 , 5, 5A, 6, 6A, 8-10, 12)	1
22	93T25S1	Nut, throttle shaft (for 2, 3, 5, 5A, 6, 6A, 8-10, 12)	1
23	93C66-69-1-26	Jet, discharge (for 1, 4, 7, 11)	1
—	93C66-721-1-26	Jet, discharge (for 2, 6A))	1
—	93C66-89-1-26	Jet, discharge (for 5, 5A, 8, 9, 12)	1
—	93C66-72-1-26	Jet, discharge (for 3, 6, 10)	1
24 †	93T5620	Washer, fuel valve seat	1
25 †	93C81-17-35	Valve and seat, fuel (for 1-5, 5A, 6, 6A, 8-10, 12)	
—	93C81-17-30	Valve and seat, fuel (for 7, 11)	1
26 †	93C120-18	Axle, float	1
27	93C85-97	Float	1
28 †	93C142-55	Gasket, bowl	1
29	93C52-2-11	Jet, idle (for 1-5, 5A, 6, 6A, 8-10, 12)	1
—	93C52-2-10	Jet, idle (for 7, 11)	1
30	93B3-98	Bowl, fuel assembly	1
31 †	93T56-24	Washer, main jet (NLA)	1
32	93C52-7-20	Jet, main (for 8)	1
—	93C52-7-21	Jet, main (for 9)	1
—	93C52-7-22	Jet, main (for 1, 10)	1
—	93C52-7-24	Jet, main (for 2, 5, 5A, 12)	1
—	93C52-7-26	Jet, main (for 4)	1
—	93C52-7-23	Jet, main (for 7, 11)	1
—	93C52-7-27	Jet, main (for 3, 6, 6A)	1
33 †	PH499	Washer, main passage	1
34	93C13824	Plug, main passage (for 4)	1
—	93C138-24	Plug, main passage (for 1, 7-11)	1
—	93C71-49	Adjustment, main (for 2, 3, 5, 5A, 6, 6A, 12)	1
35	93T91-1	Plug, bowl drain	1
37	93T301S8-9	Screw, bowl to body (short)	1
38	93T301S8-14	Screw, bowl to body (long)	2
39	QC53	Gasket, flange	1
40	93T48-7	Seal, throttle shaft	2
41	93T52-13	Retainer, shaft seal	2
46	93T10-11	Screw, thrust collar set (NLA) (for 1, 4, 7, 11)	1
47	93C130-29	Collar, shaft thrust (for 1, 4, 7, 11)	1
48	93C108-92	Shaft and lever, choke (for 1, 7)	1
—	93C108-113	Shaft and lever, choke (for 4)	1
—	93C108-134	Shaft and lever, choke (for 9)	1
—	93C108-127	Shaft and lever, choke (for 5, 6, 8, 10, 12)	1
—	93C108-244	Shaft and lever, choke (for 11)	1
49	93C117-58	Spring, choke lever (for 1, 4, 7)	1
50	93T8S8-6	Screw, swivel (for 1, 4, 7, 11)	1
—	93T75-3	Seal, choke shaft (not illustrated) (for 9)	2
—	93C181-296	Gasket kit	1
—	LQ35	Kit, repair parts (for 1-5, 5A, 6, 6A, 8-10, 12)	1
—	LQ34	Kit, repair parts (for 7, 11)	1

† Items included in repair kit

Note: The Venturi, Idle Air Vent and Well Vent are Calibrated Parts of the Throttle Body (item 9) and are not readily removable.

L52 Series (Marvel-Schebler Carburetor)

DESCRIPTION

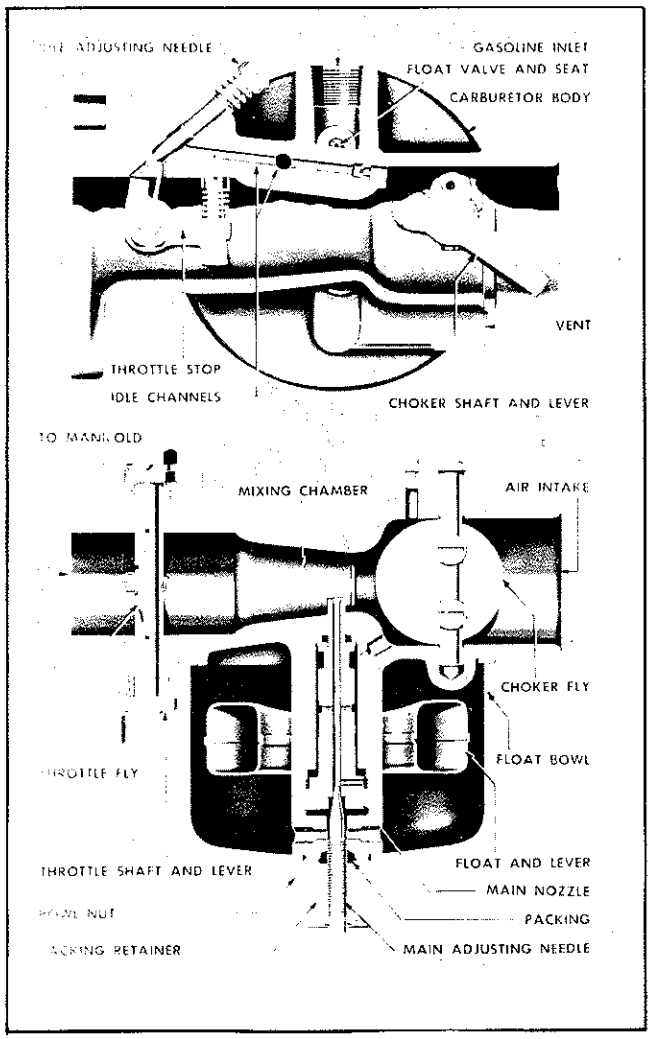
1. The Models VH-53 (Wis. No. L-52-C) and VH-92 (Wis. No. L-52-K) are float type carburetors with main fuel adjustment and idle adjustment, designed for use on Models AB, ABS, ABN, ABM, ACN, AK, AKS, AKN, AKM and BKN Wisconsin Air Cooled Gasoline Engines, and are made up of two major units – a cast throttle body and a stamped steel fuel bowl. The Models VH-70 (Wis. No. L-52-E) and VH-93 (Wis. No. L-52-L) are similar to the above carburetors except that they have a fixed main nozzle instead of an adjustable nozzle. Model VH-90 (Wis. No. L-52-J) is less float, valve seat and gasket, with main fuel adjustment.
2. Model VH-53 replaces Model VH-12 (Wis. No. L-52-A) and Model VH-92 replaces Models VH-14 (Wis. No. L-52) and VH-63 (Wis. No. L-52-G) on above listed Wisconsin engines. Models VH-53, VH-63, VH-70, VH-92 and VH-93 carburetors have dust shields provided on the throttle shaft to eliminate dirt and other abrasive materials, thereby increasing throttle shaft life.
3. The model number is stamped on a square boss, provided for it on the body casting.

OPERATION

With the throttle fly slightly open from the closed position to permit idling, the main fuel nozzle may be delivering little or no fuel, as only a very small quantity of air passes through the mixing chamber at this time. An idle passage is provided to carry sufficient air and fuel to the engine side of the throttle fly where the suction is high. This passage takes the air from the inlet side of the venturi to the inter-section of the vertical idle fuel passage (which connects with the main nozzle assembly) and delivers the air-fuel mixture through an opening controlled by the idle adjusting needle to the throttle barrel just beyond or on the engine side of the throttle fly. The idle system is practically independent of the main nozzle system, and only controls the fuel metering at low engine speed. As air-flow increases with the opening of the throttle fly the main nozzle begins to deliver fuel, and the delivery from the idle system decreases until at full throttle, delivery is entirely from the main nozzle.

ADJUSTING CARBURETOR

1. Set the main adjusting needle from 1-1/2 to 1-7/8 turns open, (not applicable to VH-70 (L-52E) and VH-93 (L-52L) carburetors since these have a fixed main nozzle.)
   Caution:
   When setting the main adjusting needle in order to find its position, do not seat the needle too firmly, as this will damage the needle point and make satisfactory adjustment impossible.
2. To start the engine, close the choker fly. When the engine starts, the choker will automatically open to the proper warm-up position. After engine has warmed up, open choker fully.
3. After the engine has been thoroughly warmed up, make a final adjustment with the choker wide open by turning the main adjusting needle to that position at which the engine operates most smoothly with full load. This setting will also be satisfactory for starting a cold engine.
4. Close the throttle and adjust the throttle stop screw to give the proper idle speed. The idle adjusting needle should be in proper adjustment at about ½ to ¾ turns open.



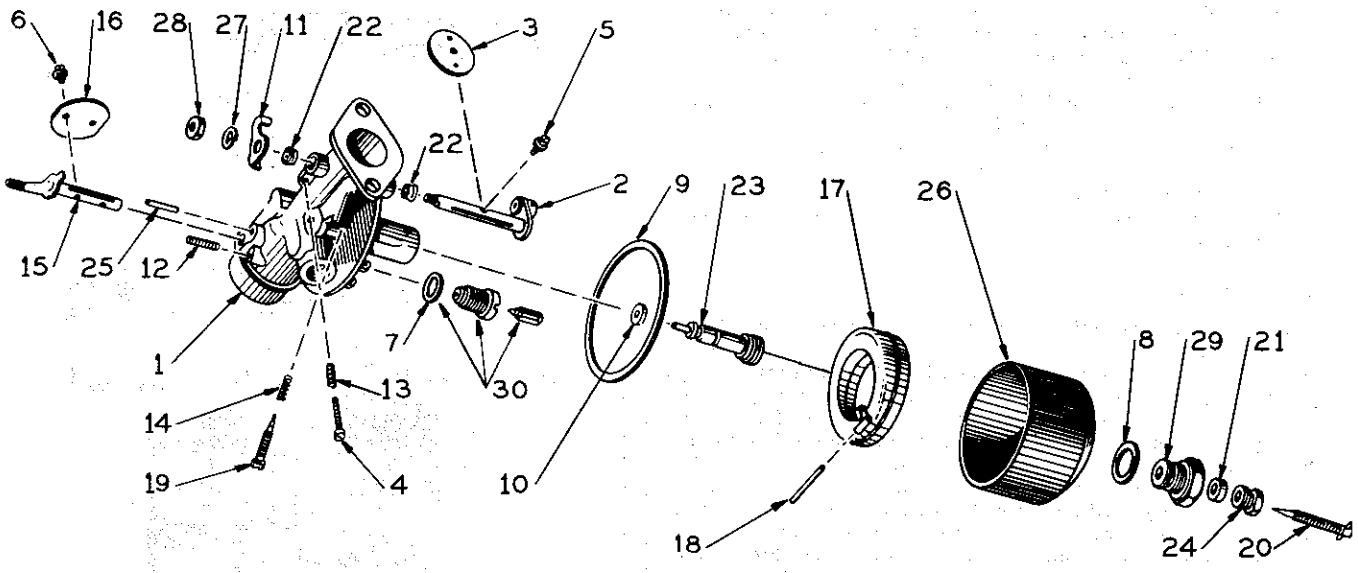
Turn the idle adjusting needle open until engine rolls from "richness." Then turn the needle towards the seat until the engine runs irregularly from "leanness." From the "lean" setting, open the idle adjusting needle to the richest mixture that will not cause the engine to "roll" or run unevenly. This adjustment will, in most cases, give a slower idling speed than a slightly leaner adjustment with the same throttle stop screw setting, but will give the smoothest idle operation. After the idle adjusting needle setting has been made, it may be necessary to revise the throttle stop screw setting to give the proper idling speed.

CAUTION:

Care should be taken not to damage the idle adjusting needle nor its seat by turning the idle adjusting needle too tightly against the seat, as damage to either of these parts will make a satisfactory idle adjustment very difficult.

L52 Series (Marvel-Schebler Carburetor), L52C (Use L51ES1) (Marvel-Schebler No. VH53), L52G (Marvel-Schebler No. VH63), L52E (NLA) (Marvel-Schebler No. VH70), L52J (Marvel-Schebler No. VH90), L52K (Use L51FS1) (Marvel-Schebler No. VH92), L52L (Marvel-Schebler No. VH93)

USE WITH MODELS AKN, BKN, ACN, AA, AB, ABS, ABN, AE



Item	Wisconsin L52C Marvel-Schebler VH53	Wisconsin L52G Marvel-Schebler VH63	Wisconsin L52E Marvel-Schebler VH70	Wisconsin L52J Marvel-Schebler VH90	Wisconsin L52K Marvel-Schebler VH92	Wisconsin L52L Marvel-Schebler VH93	Description
			Marvel-Schebler Part Numbers				
	10-3474	10-3687	10-3672	10-4181	10-4236	10-4241	Carburetor assembly, complete
1	10-3475	10-3688	10-3475	10-4303	10-4246	10-4246	Carburetor body assembly
2	13-924	13-849	13-924	13-924	13-924	13-924	Throttle shaft assembly
3	14-216	— —	14-216	14-216	14-216	14-216	Throttle fly (12°)
	— —	14-204	— —	— —	— —	— —	Throttle fly (10°)
4	15-28	15-28	15-28	15-28	15-28	15-28	Screw, no. 6-32 thread x 1/2" fillister head (throttle adj.)

(continued on page 19)

L52 Series (Marvel-Schebler Carburetor), L52C (Use L51ES1) (Marvel-Schebler No. VH53), L52G (Marvel-Schebler No. VH63), L52E (NLA) (Marvel-Schebler No. VH70), L52J (Marvel-Schebler No. VH90), L52K (Use L51FS1) (Marvel-Schebler No. VH92), L52L (Marvel-Schebler No. VH93) (Cont.)

USE WITH MODELS AKN, BKN, ACN, AA, AB, ABS, ABN, AE (see pg. 18)

Item	Marvel-Schebler Part Numbers: Wisconsin L52C Marvel-Schebler VH53	Wisconsin L52G Marvel-Schebler VH63	Wisconsin L52E Marvel-Schebler VH70	Wisconsin L52J Marvel-Schebler VH90	Wisconsin L52K Marvel-Schebler VH92	Wisconsin L52L Marvel-Schebler VH93	Description
5	— —	15A46	— —	— —	— —	— —	Screw, no. 4-40 x 1/4" "Sems" (throttle fly)
	15A47	— —	15A47	15A47	15A47	15A47	Screw, no. 4-40 thread x 3/16" "Sems" (throttle fly)
6	15A47	15A47	15A47	15A47	15A47	15A47	Screw, no. 4-40 x 3/16" "Sems" (choke shaft – 2)
7	16-4	16-4	16-4	16-4	16-4	16-4	Gasket, float valve seat
8	16-14	16-14	16-14	16-14	16-14	16-14	Gasket, bowl nut to bowl
9	16A83	16A83	16A83	16A83	16A83	16A83	Gasket, body to bowl
10	16A95	16A95	16A95	16A95	16A95	16A95	Gasket, nozzle
	16-743	16-743	16-743	16-701	16-743	16-743	Gasket assortment
11	21-161	21-161	21-161	21-161	21-161	21-161	Stop, throttle
12	24A63	24A63	24A63	24A63	24A63	24A63	Spring, choke lever friction
13	24A69	24A69	24A69	24A69	24A69	24A69	Spring, throttle adjusting screw
14	24A136	24A136	24A136	24A136	24A136	24A136	Spring, idle adjusting needle
15	26-673	26-673	26-673	26-673	26-673	26-673	Choke shaft assembly
16	27-185	27-185	27-185	27-185	270185	27-185	Choke fly
17	30-658	30-658	30-658	— —	30-658	30-658	Float and lever assembly
18	32-16	32-16	32-16	— —	32-16	32-16	Shaft, float lever
19	43-129	43-129	43-129	43-129	43-129	43-129	Needle, idle adjusting
20	43-604	43-604	— —	43-604	43-604	— —	Main adjusting needle, packing nut and retainer assembly
21	44-51	44-51	— —	44-51	44-51	— —	Packing, main adjusting needle
22	44-86	44-86	44-86	44-86	44-86	44-86	Packing (2), throttle shaft
23	47-373	47-331	47-730	44-331	47-331	47-766	Nozzle
24	55-285	55-285	— —	55-285	55-285	— —	Retainer, main adjusting needle packing
25	62-61	62-61	62-61	62-61	62-61	62-61	Pin, choke stop
26	65-170	65-170	65-170	65-720	65-170	65-170	Float bowl
27	78-62	78-62	78-62	78-A60	78-62	78-62	Lock washer, throttle shaft (no. 8 screw)
28	81-145	81-145	81-145	81-145	81-145	81-145	Nut, no. 8-32 thread, throttle shaft
29	81-150	81-150	— —	81-150	81-150	— —	Bowl nut
—	— —	— —	80-216	— —	— —	80-216	Bowl retainer and nozzle plug (not illustrated)
30	233-536	233-536	233-536	— —	233-536	233-536	Float valve, seat and gasket assembly
—	— —	— —	— —	16-A56	— —	— —	Gasket, fuel overflow fitting (not illustrated)
—	— —	— —	— —	68-1	— —	— —	Fitting, gas overflow (not illustrated)
—	— —	— —	— —	81-242	— —	— —	Lock nut, 1/8" pipe (not illustrated)
—	— —	— —	— —	178-40	— —	— —	Fuel baffle (not illustrated)
—	286-1024A	286-1026A	286-1024A	286-1024A	286-1024A	286-1024A	Repair kit, service

L52A Series (Marvel-Schebler Carburetor VH12 And VH14)

DESCRIPTION

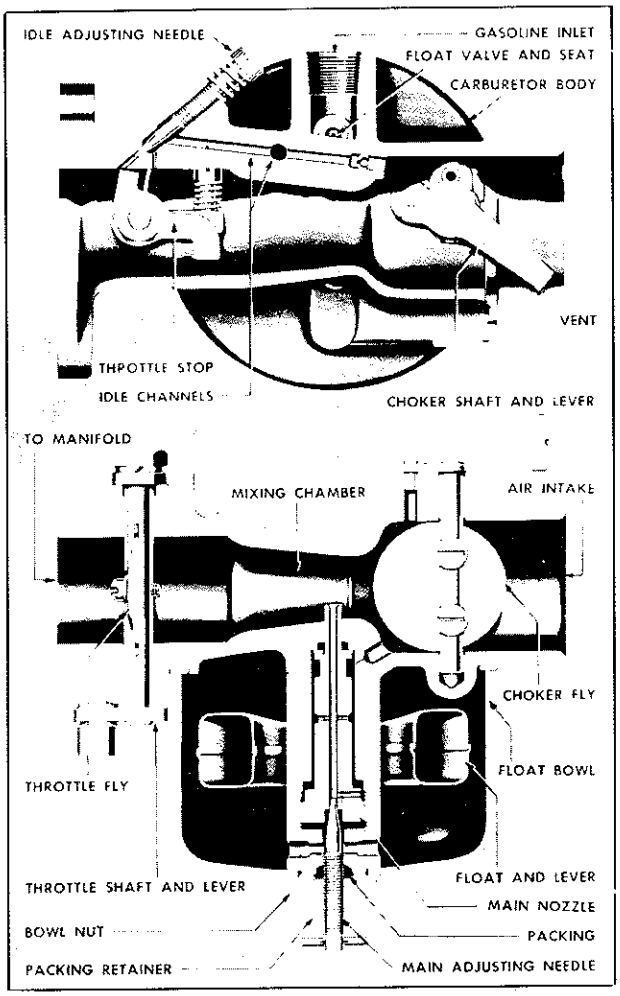
1. The Models VH12 (Wis. No. L52A) and VH14 (Wis. No. L52) are float type carburetors with main fuel adjustment and idle fuel adjustment designed for use with Models AB, ABS, ABN, ABM, AK, AKS, AKN, AKM Wisconsin Air Cooled gasoline engines, and are made up of two major units – a cast throttle body and a stamped steel fuel bowl.
2. The model number is stamped on a square boss, provided for it on the body casting.

OPERATION

With the throttle fly slightly open from the closed position to permit idling, the main fuel nozzle may be delivering little or no fuel, as only a very small quantity of air passes through the mixing chamber at this time. An idle passage is provided to carry sufficient air and fuel to the engine side of the throttle fly where the suction is high. This passage takes the air from the inlet side of the venturi to the intersection of the vertical idle fuel passage (which connects with the main nozzle assembly) and delivers the air-fuel mixture through an opening controlled by the idle adjusting needle to the throttle barrel just beyond or on the engine side of the throttle fly. The idle system is practically independent of the main nozzle system, and only controls the fuel metering at low engine speed. As air-flow increases with the opening of the throttle fly the main nozzle begins to deliver fuel, and the delivery from the idle system decreases until at full throttle, delivery is entirely from the main nozzle.

ADJUSTING CARBURETOR

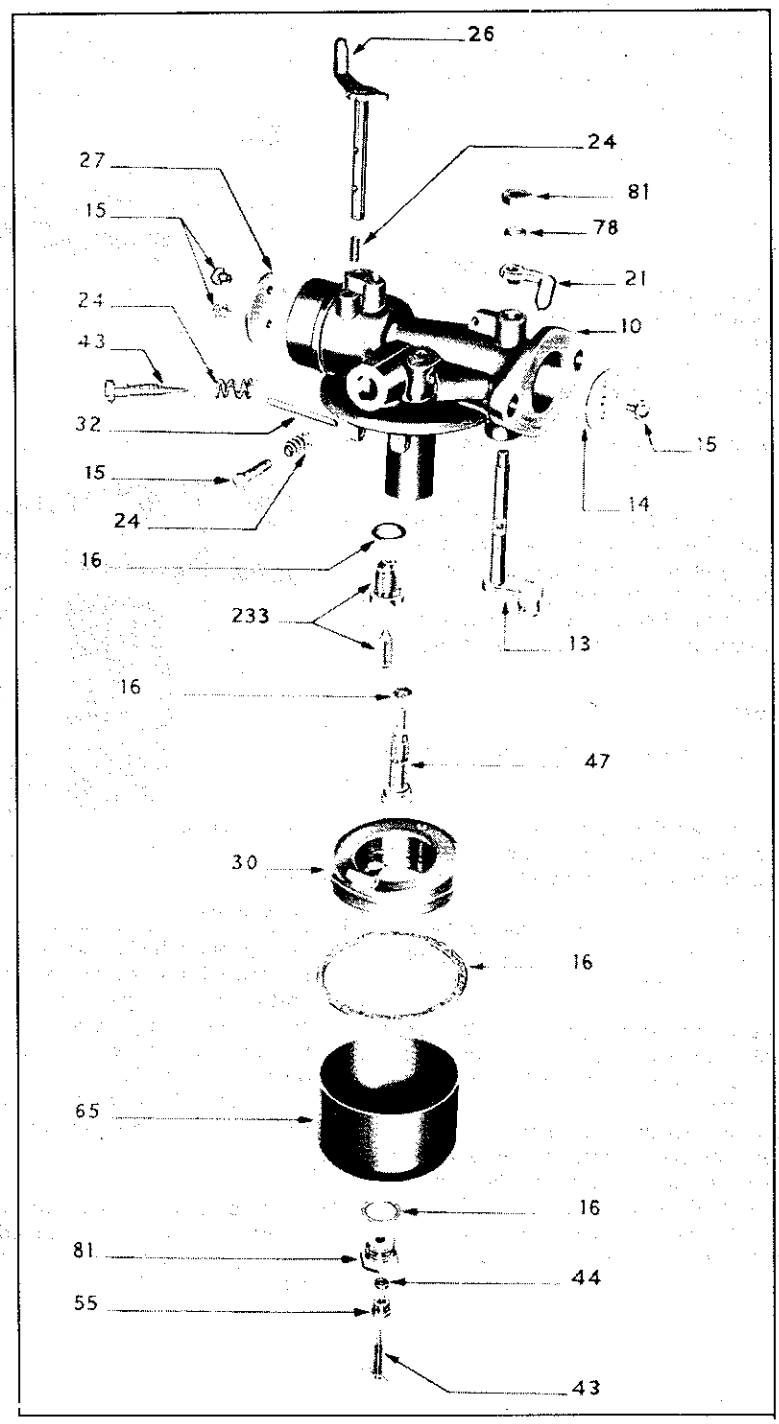
1. Set the main adjusting needle from 1-1/2 to 1-7/8 turns open.
   Caution:
   When setting the main adjusting needle in order to find its position, do not seat the needle too firmly, as this will damage the needle point and make satisfactory adjustment impossible.
2. To start the engine, close the choker fly. When the engine starts, the choker will automatically open to the proper warm-up position. After engine has warmed up open choker fully.
3. After the engine has been thoroughly warmed up, make a final adjustment with the choker wide open by turning the main adjusting needle to that position at which the engine operates most smoothly with full load. This setting will also be satisfactory for starting a cold engine.
4. Close the throttle and adjust the throttle stop screw to give the proper idle speed. The idle adjusting needle should be in proper adjustment at about 1/2 to 3/4 turns open. Turn the idle adjusting needle open until engine rolls from "richness." Then turn the needle towards the seat until the engine runs irregularly from "leanness." From the "lean" setting, open the idle adjusting needle to the richest mixture that will not cause the engine to "roll" or run unevenly. This adjustment will, in most cases, give a slower idling speed than a slightly leaner adjustment with the same throttle stop screw setting, but will give the smoothest idle operation. After the idle adjusting needle setting has been made, it may be necessary to revise the throttle stop screw setting to give the proper idling speed.



CAUTION:

Care should be taken not to damage the idle adjusting needle nor its seat by turning the idle adjusting needle too tightly against the seat, as damage to either of these parts will make a satisfactory idle adjustment very difficult.

L52A Series (Marvel-Schebler Carburetor)



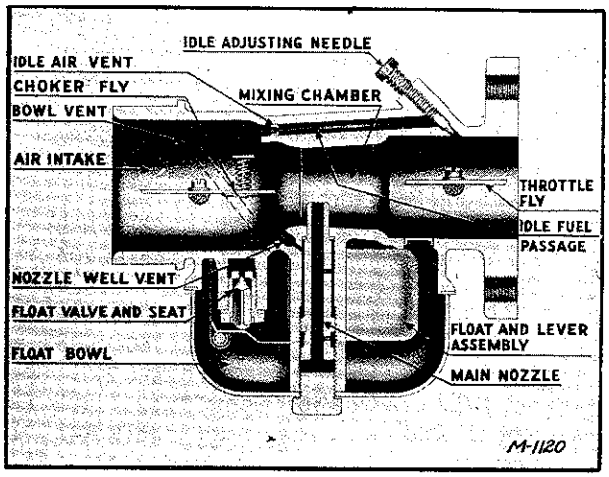
L52A Series (Marvel-Schebler Carburetor)

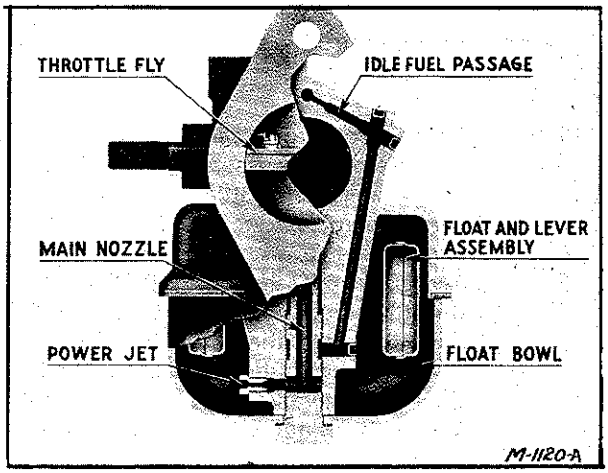
USE WITH MODELS AB, ABS, ABN, ABM, AK, AKS, AKN, AKM (see pg. 21)

SYMBOL NO.	DESCRIPTION	(L52A) VH12 PART NO.
10	Body, carburetor assembly	46-10-2512
	Carburetor body assembly	46-10-2765
13	Shaft and lever throttle shaft assembly	46-13-924
14	Fly, throttle	46-14-216
15	Screw, no. 6-32 thread x 1/2" fill. head (throttle adjusting)	46-15-28
—	Screw, no. 4-40 thread x 3/16" "Sems" (choker fly) (throttle fly)	46-15A47
16	Gasket, float valve seat	46-16-4
—	Gasket, bowl nut to bowl	46-16-14
—	Gasket, body to bowl	46-16A83
—	Gasket, nozzle	46-16A95
—	Gasket assortment	46-16-743
21	Stop, throttle	46-21-161
24	Spring, idle adjusting needle	46-24A136
—	Spring, throttle adjusting screw	46-24A69
26	Choker shaft assembly	46-26-673
27	Choker fly	46-27-185
30	Float and lever assembly	46-30-658
32	Shaft, float lever	46-32-16
43	Needle, idle adjusting	46-43-129
43	H. S. needle, packing nut and retainer assembly	46-43-604
44	Packing, H.S. needle	46-44-51
47	Nozzle assembly (NLA)	46-47-330
55	Retainer, H.S. needle packing	46-55-285
65	Float bowl (NLA)	46-65-170
78	Lock washer, no. 8 screw (throttle shaft) (NLA)	46-78-62
81	Nut, no. 8-32 thread (throttle shaft)	46-81-145
—	Bowl nut	46-81-150
233	Matched float valve, seat and gasket assembly	46-233-536
286	Repair kit	46-286-1024A

SYMBOL NO.	DESCRIPTION	(L52) VH14 PART NO.
10	Body, carburetor assembly	46-10-2786
	Carburetor body assembly	46-10-2787
13	Shaft and lever throttle shaft assembly	46-13-849
14	Fly, throttle	46-14-204
15	Screw, no. 6-32 thread x 1/2" fill. head (throttle adjusting)	46-15-28
—	Screw, no. 4-40 thread x 3/16" "Sems" (choker shaft)	46-15A47
—	Screw, no. 4-40 thread x 1/4" "Sems" (throttle fly)	46-15A46
16	Gasket, float valve seat	46-16-4
—	Gasket, bowl nut to bowl	46-16-14
—	Gasket, body to bowl	46-16A83
—	Gasket, nozzle	461-6A95
—	Gasket assortment	46-16-743
21	Stop, throttle	46-21-161
24	Spring, idle adjusting needle	46-24A136
—	Spring, throttle adjusting screw	46-24A69
26	Choker shaft assembly	46-26-673
27	Choker fly	46-27-185
30	Float and lever assembly	46-30-658
32	Shaft, float lever	46-32-16
43	Needle, idle adjusting	46-43-129
43	H.S. needle, packing nut and retainer assembly	46-43-604
44	Packing, H.S. needle	46-44-51
47	Nozzle assembly	46-47-331
55	Retainer, H.S. needle packing	46-55-285
65	Float bowl	46-65-170
78	Lock washer, no. 8 screw (throttle shaft) (NLA)	46-78-62
81	Nut, no. 8-32 (throttle shaft)	46-81-145
—	Bowl nut	46-81-150
233	Matched float valve, seat and gasket assembly	46-233-536
286	Repair kit	46-286-1026A

L54 Series (Marvel-Schebler Carburetor)





DESCRIPTION

1. The Model VH-(Wis. No. L-54-Etc.) is a float type carburetor with idle fuel adjustment designed for use with the Models VP4, VP4D and VG4D Wisconsin Air Cooled gasoline engines, and is made up of two major units—a die cast aluminum throttle body and a stamped steel fuel bowl.
2. The model number is stamped on a square boss, provided for it on the body casting.

OPERATION

With the throttle fly slightly open from the closed position to permit idling, the main fuel nozzle may be delivering little or no fuel, as only a very small quantity of air passes through the mixing chamber at this time. An idle passage is provided to carry sufficient air and fuel to the engine side of the throttle fly where the suction is high. This passage takes the air from the inlet side of the venturi to the intersection of the vertical idle fuel passage (which connects with the main nozzle assembly) and delivers the air-fuel mixture through an opening controlled by the idle adjusting needle to the throttle barrel just beyond or on the engine side of the throttle fly. The idle system is practically independent of the main nozzle system, and only controls the fuel metering at low engine speed. As air-flow increases with the opening of the throttle fly the main nozzle begins to deliver fuel, and the delivery from the idle system decreases until at full throttle, delivery is entirely from the main nozzle.

ADJUSTING CARBURETOR

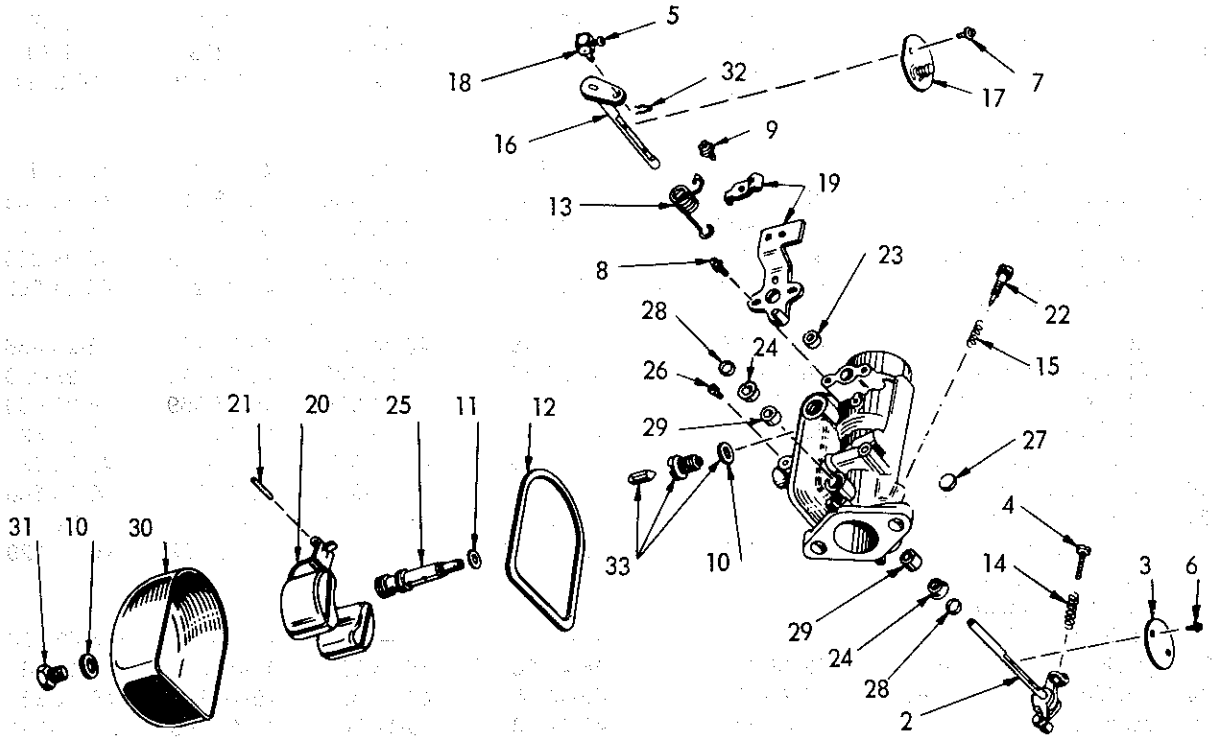
1. To start the engine, close the choker fly. When the engine starts, open choker to the proper warm-up position. After engine has warmed up, open choker fully.
2. Close the throttle and adjust the throttle stop screw to give the proper idle speed. The idle adjusting needle should be in proper adjustment at about ¾ to 1 turn open. Turn the idle adjusting needle open until engine rolls from "richness". Then turn the needle towards the seat until the engine runs irregularly from "leanness". From the "lean" setting, open the idle adjusting needle to the richest mixture that will not cause the engine to "roll" or run unevenly. This adjustment will, in most cases, give a slower idling speed than a slightly leaner adjustment with the same throttle stop screw setting, but will give the smoothest idle operation. After the idle adjusting needle setting has been made, it may be necessary to revise the throttle stop screw setting to give the proper idling speed.

CAUTION:

Care should be taken not to damage the idle adjusting needle nor its seat by turning the idle adjusting needle too tightly against the seat, as damage to either of these parts will make a satisfactory idle adjustment very difficult.

L54 Series (Marvel-Schebler Carburetor)

USE WITH MODELS VP4, VP4D, VG4D



ITEM	DESCRIPTION	L54 VH16 10-2855	L54D VH20 10-2950	L54B VH22 10-2964	L54C VH23 10-2980	L54F VH30 10-3111
2	Throttle shaft assembly	46-13-9199	46-13-956	46-13-948	46-13-919	46-13-980
3	Throttle fly	46-14-214	46-14-214	46-14-214	46-14-214	46-14-214
4	Screw, no. 8-32 thread x 3/4" long, throttle stop	46-15-42	46-15-42	46-15-42	46-15-42	46-15-85
5	Screw, no. 8-32 thread x 5/16" long, ch. sw.	46-15-285	46-15-285	46-15-285	46-15-285	46-15-285
6	Screw, no. 4-40 thread x 1/4" long, "Sems", throttle fly	46-15A46	46-15A46	46-15A46	46-15A46	46-15A46
7	Screw, no. 4-40 thread x 3/16" long, "Sems", choke fly	46-15A47	46-15A47	46-15A47	46-15A47	46-15A47
8	Screw, no. 8-32 thread x 3/8" long, fill. head, "Sems", choke bracket	— — —	46-15A93	46-15A93	46-15A93	46-15A93
9	Screw, no. 8-32 thread x 5/16" long, "Sems", choke bracket clip	— — —	46-15A99	46-15A99	— — —	46-15A99

(continued on page 25)

L54 Series (Marvel-Schebler Carburetor) (Cont.)

USE WITH MODELS VP4, VP4D, VG4D (see pg. 24)

ITEM	DESCRIPTION	L54 VH16 10-2855	L54D VH20 10-2950	L54B VH22 10-2964	L54C VH23 10-2980	L54F VH30 10-3111
10	Gasket, bowl plug – 1, float valve seat – 1	46-16-4	46-16-4	46-16-4	46-16-4	46-16-4
11	Gasket, nozzle	46-16-456	46-16-456	46-16-456	46-16-456	46-16-456
12	Gasket, bowl	46-16A105	46-16A105	46-16A105	46-16A105	46-16A105
13	Spring, choke return	46-24A107	46-24-213	46-24-213	46-24A107	46-24-213
14	Spring, throttle adjusting	46-24-262 (NLA)	46-24-262	46-24-262	46-24-262	46-24-262
15	Spring, idle adjusting needle	46-24-485	46-24-485	46-24-485	46-24-485	46-24-485
16	Choke shaft assembly	46-26-711	46-26-720	46-26-720	46-26-711	46-26-720
17	Choke fly assembly	46-27-559	46-27-559	46-27-559	46-27-559	46-27-559
18	Choke swivel	46-28-49	46-28-49	46-28-49	46-28-49	46-28-49
19	Choke bracket asssembly	— — —	46-29-537	46-29-537	— — —	46-29-537
20	Float and lever assembly	46-30-666	46-30-666	46-30-666	46-30-666	46-30-666
21	Float lever shaft	46-32-27	46-32-27	46-32-27	46-32-27	46-32-27
22	Idle adjusting needle	46-43-129	46-43-129	46-43-129	46-43-129	46-43-129
—	Power adjusting needle assembly (includes spring) (not illustrated)	— — —	— — —	— — —	— — —	46-43-606
23	Packing, choke shaft	46-44-38	46-44-38	46-44-38	46-44-38	46-44-38
24	Packing, throttle shaft	46-44-38	46-44-38	46-44-38	46-44-38	46-44-38
25	Main nozzle	46-47-300	46-47-300	46-47-300	46-47-300	46-47-311
26	Power jet	46-49-279	46-49-283	46-49-283	46-49-283	— — —
27	Cup, choke shaft	46-55-230	46-55-230	46-55-230	46-55-230	46-55-230
28	Packing retainer, throttle shaft	46-55-231	46-55-231	46-55-231	46-55-231	46-55-231
29	Bushing, throttle shaft	46-60-439	46-60-439	46-60-439	46-60-439	46-60-439
30	Fuel bowl	46-65-172	46-65-172	46-65-172	46-65-172	46-65-700
31	Plug, bowl retaining	46-80-166	46-80-166	46-80-166	46-80-166	46-80-166
32	Cotter, choke swivel	46-82-16	46-82-16	46-82-16	46-82-16	46-82-16
33	Matched float valve, seat and gasket assembly	46-233-536	46-233-536	46-233-536	46-233-536	46-233-536
—	Package repair kit	46-286-756A	46-286-776A	46-286-777	46-286-756A	46-286-813A
—	Gasket assortment	46-16-649	46-16-649	46-16-649	46-16-649	46-16-649

REF. NO.	DESCRIPTION	L54J VH45 10-3396	L54J1 (use L57-1S1) VH69A 10-3774	L54K VH49 10-3398	L54N VH71 10-3696
2	Throttle shaft assembly	46-13-956	46-13-956	46-13-980	46-13-956
3	Throttle fly	46-14-214	46-14-214	46-14-214	46-14-214
4	Screw, no. 8-32 thread x 3/4" long, throttle stop	46-15-42	46-15-42	46-15-85	46-15-42
5	Screw, no. 8-32 thread x 5/16" long, ch. sw.	46-15-285	46-15-285	46-15-285	46-15-285

(continued on page 26)

L54 Series (Marvel-Schebler Carburetor) (Cont.)

USE WITH MODELS VP4, VP4D, VG4D (see pg. 24)

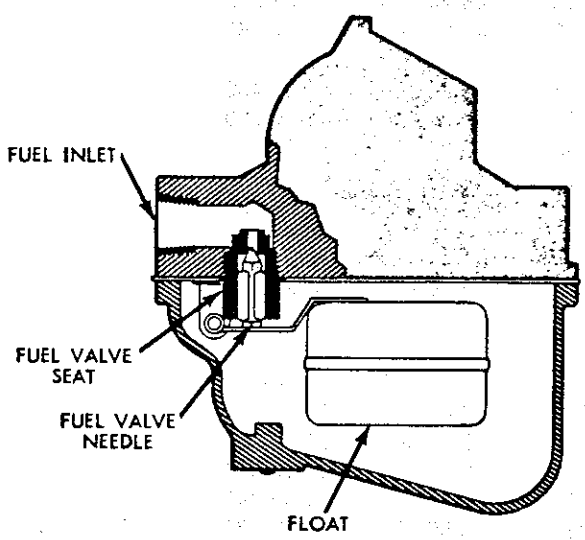
ITEM	DESCRIPTION	L54J VH45 10-3396	L54J1 (use L57-151) VH69A 10-3374	L54K VH49 10-3398	L54N VH71 10-3696
6	Screw, no. 4-40 thread x 1/4" long, "Sems", throttle fly	46-15A46	46-15A46	46-15A46	46-15A46
7	Screw, no. 4-40 thread x 3/16" long, "Sems", choke fly	46-15A47	46-15A47	46-15A47	46-15A47
8	Screw, no. 8-32 thread x 3/8" long, fill. head, "Sems", choke bracket	46-15-A93	46-15A93	46-15A93	46-15A93
9	Screw, no. 8-32 thread x 5/16" long, "Sems", choke bracket clip	46-15A99	46-15A99	46-15A99	46-15A99
10	Gasket, bowl plug – 1, float valve seat – 1	46-16-4	46-16-4	46-16-4	46-16-4
11	Gasket, nozzle	46-16-456	46-16-456	46-16-456	46-16-456
12	Gasket, bowl	46-16A105	46-16A105	46-16A105	46-16A105
13	Spring, choke return	46-24-213	46-24-213	46-24-213	46-24-213
14	Spring, throttle adjusting	46-24-262	46-24-262	46-24-262	46-24-262
15	Spring, idle adjusting needle	46-24-485	46-24-485	46-24-485	46-24-485
16	Choke shaft assembly	46-26-720	46-26-720	46-26-720	46-26-720
17	Choke fly assembly	46-27-559	46-27-559	46-27-559	46-27-559
18	Choke swivel	46-28-49	46-28-49	46-28-49	46-28-49
19	Choke bracket asssembly	46-29-537	46-29-537	46-29-537	46-29-537
20	Float and lever assembly	46-30-666	46-30-666	46-30-666	46-30-666
21	Float lever shaft	46-32-27	46-32-27	46-32-27	46-32-27
22	Idle adjusting needle	46-43-129	46-43-129	46-43-129	46-43-129
—	Power adjusting needle assembly (includes spring) (not illustrated)	— — —	— — —	46-43-606	— — —
23	Packing, choke shaft	46-44-38	46-44-38	46-44-38	46-44-38
24	Packing, throttle shaft	46-44-38	93T-48-7	46-44-38	93T48-7
25	Main nozzle	46-47-300	46-47-395	46-47-311	46-47-311
26	Power jet	46-49-224	46-49-253	— — —	46-49-347
27	Cup, choke shaft	46-55-230	46-55-230	46-55-230	46-55-230
28	Packing retainer, throttle shaft	46-55-231	46-55-231	46-55-231	46-55-231
29	Bushing, throttle shaft	46-60-439	46-60-439	46-60-439	46-60-439
30	Fuel bowl	46-65-172	46-65-172	46-65-700	46-65-172
31	Plug, bowl retaining	46-80-166	46-80-166	46-80-166	46-80-166
32	Cotter, choke swivel	46-82-16	46-82-16	46-82-16	46-82-16
33	Matched float valve, seat and gasket assembly	46-233-536	46-233-536	46-233-536	46-233-536
—	Package repair kit	46-286-776A	46-286-776A	46-286-831A	46-286-776A
—	Gasket assortment	46-16-649	46-16-649	46-16-649	46-16-649

L56 Series (Zenith Model 12A10 Carburetor)

The Zenith 12 Series is a horizontal carburetor with a concentric fuel bowl. It is a 'balanced' carburetor because all air for the fuel chamber and well ventilation and idling must come through the air cleaner. Air cleaner restrictions have a minimum influence on the fuel-air ratio when a carburetor is thus balanced.

The location of the float chamber and metering jets permits extremely high angle operation.

The venturi, which is a part of the throttle body casting, measures the volume of air which may pass through the carburetor. In selecting the venturi size, it is advisable to use the smallest size which will permit desired power output.



FUEL SUPPLY SYSTEM

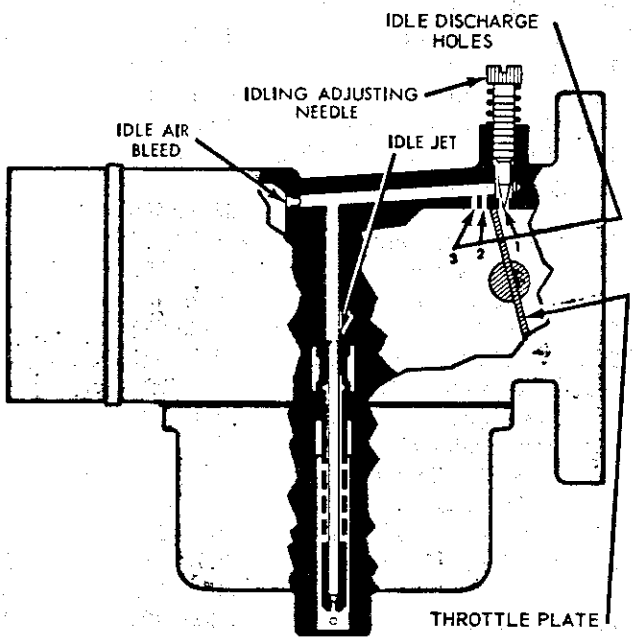
Figure 1

FUEL SUPPLY SYSTEM

Fuel under normal pressure entering the float chamber through the fuel valve seat is controlled by the twin float which, moving on its axle, closes the needle valve when the fuel reaches the proper level in the bowl. See Fig. 1.

IDLING SYSTEM

The idling system supplies a fuel-air mixture which, when mixed with the additional air passing the throttle plate, is correct for idle and low part-throttle speeds. This system remains in operation until the



IDLING SYSTEM

Figure 2

throttle plate is opened far enough to pass sufficient air through venturi for this air velocity to start the main jet system into operation.

The idling system, see Fig. 2, consists of three idling discharge holes, the idling adjusting needle, the idling jet, idling air bleed and a series of connecting channels.

Fuel for the idling system comes from the fuel bowl through the main jet and flows into the channel containing the metering well. The idling jet is assembled into the metering well. The idling jet calibration is at the upper end of the tube and meters the fuel into a channel where it is mixed with air admitted through the Idle Air Bleed.

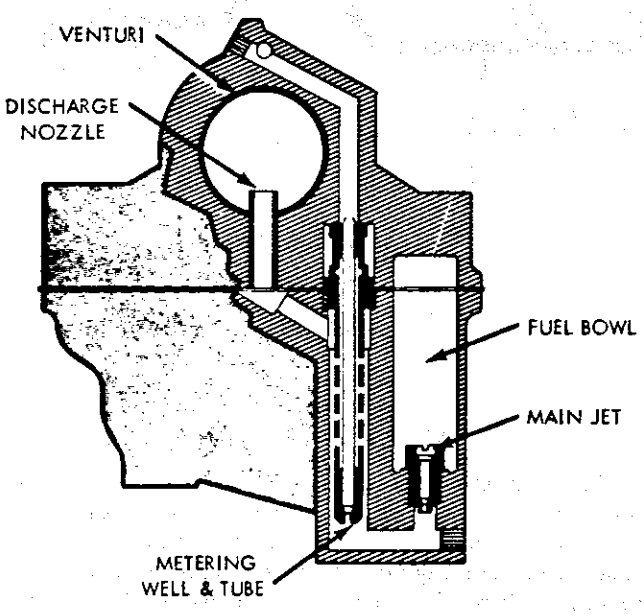
At very low idling speeds, with only the #1 idle discharge hole exposed to manifold vacuum, the mixture is further diluted by air admitted through #2 and #3 idle discharge holes. The amount of air admitted through these #2 and #3 holes diminishes as the throttle plate is opened and first #2 idle discharge hole and then #3 idle discharge hole becomes exposed to the manifold vacuum and start to feed the idling mixture into the air stream.

The idling adjusting needle controls the quality of the idling mixture. Turning the needle (clockwise) closer to its seat creates a leaner idling mixture, while turning the needle (counter-clockwise) away from its seat makes the mixture richer. The idling speed is set by adjusting the stop screw on the throttle stop lever.

THE HIGH SPEED SYSTEM

The high speed system controls the mixture from the time it takes over from the idling system to full throttle. This system consists of the venturi, the discharge tube, the metering well, the well vent, the main jet, the connecting channels and the fuel supply from the bowl. See Fig. 3.

Fuel from the fuel bowl is metered by the main jet, mixed with air from the well vent in the metering well and discharged into the air stream at the throat of the main venturi. To maintain a correct mixture ratio, a small amount of air is admitted through the well vent or high speed bleeder. Air bleed holes are located in the wall of the metering well at various levels below the fuel level in the well. Introducing air into the system below the fuel level reduces the surface tension of the fuel and helps it to flow at low suction. Under high suction the air from the well vent retards the flow of fuel.



HIGH SPEED SYSTEM

Figure 3

CHOKE SYSTEM

Starting a cold engine requires a much richer mixture of fuel and air. Moving the choke lever to close the choke plate restricts the air entering the carburetor, except at the pitot tube to the bowl vent, and increases the suction on the idling system which makes the mixture richer. See Fig. 4.

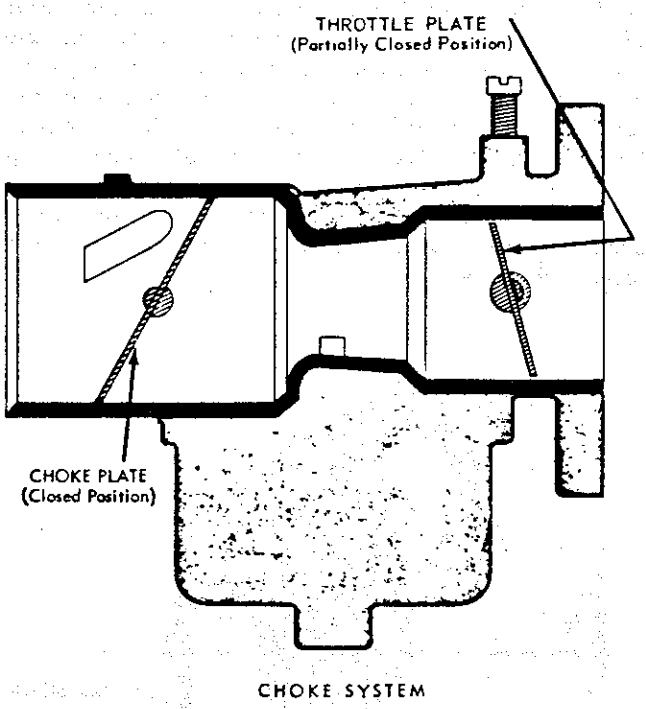


Figure 4

STARTING THE ENGINE

Before cranking the engine, the carburetor throttle should be opened a little to expose both idle discharge ports to suction. The choke should be fully closed until the engine starts, then opened a little to prevent stalling from being over-choked, then when the engine is fully warmed up the choke can be returned to wide open position and the throttle closed to the idling position.

ADJUSTMENTS

Adjust the throttle stop screw to obtain the desired idling speed by turning the screw in (clockwise) to increase the speed and out (counter-clockwise) to decrease the engine speed.

Adjust the idle adjusting needle to obtain smooth idling of the engine at idling speed. Turn the needle out (counter-clockwise) to make the mixture richer, and in (clockwise) to make it leaner.

SERVICE AND REPAIR PROCEDURE

A. IDENTIFY CARBURETOR

Check the numbers on metal identification disc riveted to bottom of fuel bowl. The inside number next to the rivet is the Zenith assembly number and the one next to the outer edge of the disc is the Wisconsin Motor Corporation part number.

B. DISASSEMBLED, Refer to Fig. 5

The exploded view, Fig. 5, will help you to identify the various component parts and show their relation to assembly. Use the exploded view with the identifying part numbers to identify and locate parts when performing disassembly and reassembly operations.

C. SEPARATE CARBURETOR BODIES

(a) Remove the four bowl assembly screws (40) and separate fuel bowl (38) from throttle body (6).

(b) Remove assembly gasket (35) and discharge tube (34) with rubber seal (33).

D. DISASSEMBLE THROTTLE BODY

(a) Remove float axle (31) by pressing against the end with the blade of screwdriver.

(b) Remove the float (32).

(c) Remove the fuel valve needle (30), using the fingers.

(d) Remove the fuel valve seat (30) and fibre washer (29), using Zenith tool C161-85.

(e) Remove the idle adjusting needle (1) and spring (2).

(f) Remove throttle plate and shaft assembly as follows:

(1) Make match marks with file or prick punch

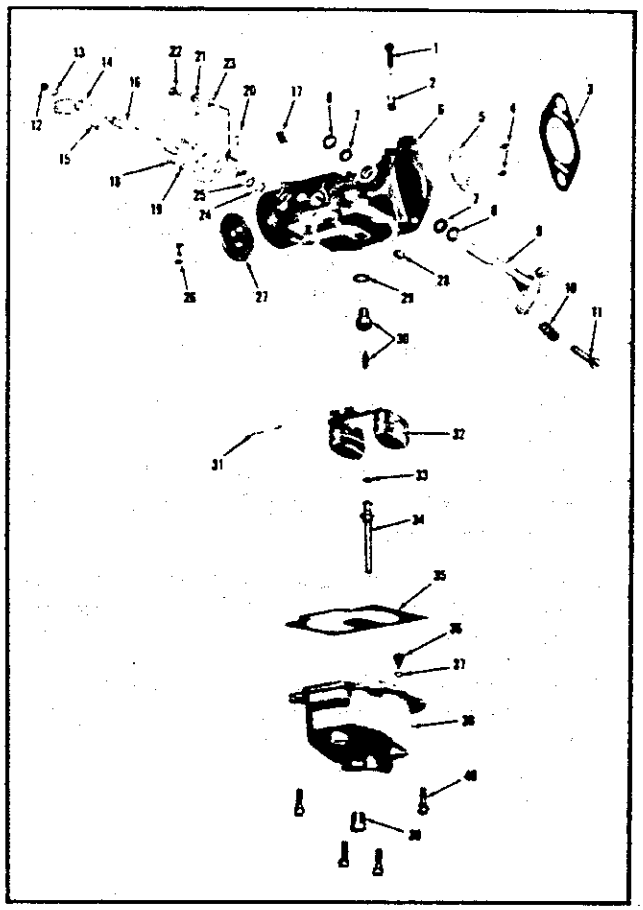


Figure 5

on throttle body (6) and lever to act as a guide to reassemble these parts in the same position as removed.

(2) Remove throttle plate screws (4) and throttle plate (5).

(3) Remove throttle lever and shaft assembly (9).

(g) Remove throttle shaft seal (7) and retainer (8), using the end of a small screwdriver to lift the parts out.

(h) Remove the choke lever spring (17).

(i) Disassemble choke as follows:

(1) Make match marks with file or prick punch on choke bracket (20) choke lever (14) and adjacent shaft boss as an aid to correct reassembly.

(2) Remove choke plate screws (26) and choke plate (27).

(3) Remove choke lever (14) and shaft (16).

(4) Remove choke bracket screws (18), lockwashers (19) and bracket (20).

(5) Remove choke shaft seal (24) and retainer (25), using end of small screwdriver to lift out.

E. DISASSEMBLE FUEL BOWL

(a) Remove main jet (36) and fibre washer (37).

CLEAN AND INSPECT PARTS

A. CLEAN PARTS

(a) Clean all metal parts thoroughly with cleaning solution and rinse in solvent.

(b) Blow out all passages in throttle body and fuel bowl. NOTE: Be sure all carbon deposits have been removed from throttle bore and idle discharge holes. It is advisable to reverse flow of compressed air in all passages to insure all dirt has been removed. Never use a wire or drill to clean out jets.

B. INSPECT PARTS

(a) Float assembly. Replace if loaded with gasoline, damaged, or if float axle bearing is worn excessively. Inspect top side of float lever for wear where it contacts fuel valve needle.

(b) Float axle. Replace if any wear can be visually detected on the bearing surface.

(c) Fuel valve seat and needle assembly. Replace this assembly. Wear of either of these parts may cause improper float level.

(d) Idling adjusting needle. Inspect point of needle, as it must be smooth and free of grooves.

(e) Gaskets, Fibre washers, and Seals. Replace all gaskets, fibre washers, seals and retainers each time the carburetor is disassembled.

L56 (Zenith Assembly No. 12054B), L56B (Zenith Assembly No. 12311A) (NLA) Service Parts List for Zenith Model 12A10 Carburetor

REASSEMBLY

A. FUEL BOWL

(a) Install main jet (36) and fibre washer (37), using a screwdriver.

B. THROTTLE BODY

(a) Install new choke shaft seal (lip side out) (24) and retainer (25).

(b) Reassemble choke parts as follows:

(1) Refer to match marks for correct position and install choke bracket (20), screws (18), lockwashers (19) and lever (14) and shaft (16).

(c) Install choke plate (27) and screws (26).

(d) Connect choke lever spring (17).

(e) Install new throttle shaft seals (7) into new retainers (8) with lip of seal facing retainer.

(f) Press retainers, flange end inward, into throttle shaft holes (slight tapping with hammer may be required to bring retainer flush with shaft boss).

(g) Install throttle shaft and lever (9) with a slight oscillating motion of shaft to start it into seal. Slowly work shaft through opposite seal and retainer.

(h) Install throttle plate (5) and screws (4).

(i) Install new fuel valve seat (30) and fibre washer (29).

(j) Install new fuel valve needle (30), float (32) and float axle (31).

(k) Place light coating of lubricating oil on discharge tube and well vent shoulder (34) to hold new seal (33) in place. Install jet and seal into discharge port in throttle body.

C. ASSEMBLE CARBURETOR BODIES

(a) Install new assembly gasket (35) on throttle body.

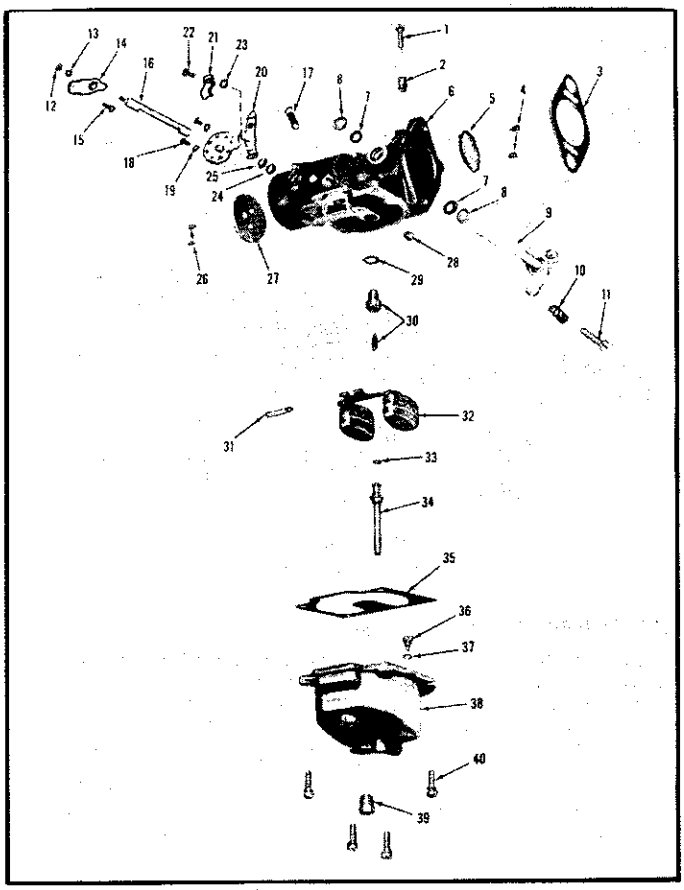
(b) Assemble fuel bowl (38) to throttle body (6) with assembly screws (40). Tighten screws evenly and firmly.

(c) Install idle adjusting screw (1) and spring (2). Seat lightly and back out 1¼ turns as preliminary adjustment.

(d) Hold the throttle lever in a closed position and turn the throttle stop screw (11) in until it contacts the stop pin, then turn in 1½ additional turns as a preliminary adjustment of the idle speed.

L56 (Zenith Assembly No. 12054B), L56B (Zenith Assembly No. 12311A) (NLA) Service Parts List For Zenith Model 12A10 Carburetor

USE WITH MODEL VR4D



ITEM		ZENITH PART NO.	DESCRIPTION	QTY
1	†	93C46-57	Needle, idle adjusting	1
2		93C111-191	Spring, idle adjusting	1
3	†	93C141-4-1	Gasket, flange (NLA)	1
4		93T315S5-4	Screw, throttle plate	2
5	†	93C21-52	Plate, throttle	1
6		—	Body, throttle (not sold separately)	1
7	†	93CT48-10	Seal, throttle shaft	2
8	†	93C131-33	Retainer, throttle shaft seal	2
9		93C29-1266	Shaft and lever, throttle	1
10		93C111-17	Spring, throttle stop screw	1
11		93T8S10-16	Screw, throttle stop	1
12		93T22S8	Nut, choke shaft	1
13		93T45-8	Lock washer, choke shaft nut	1
14		93C106-2	Lever, choke	1
15		93T8S8-7	Screw, choke lever swivel (NLA)	1
16		93C105-268	Shaft, choke	1
17		93C112-6	Spring, choke lever	1
18		93C140-58	Screw, choke bracket assembly	2
19		93T41-8	Lock washer, choke bracket screw	2
20		93C109-60C	Bracket, choke	1
21		93C110-7	Clamp, choke cable tube	1
22		93T8S8-8	Screw, tube clamp	1
23		93T21S8	Nut, tube clamp screw	1
24	†	93CT48-9	Seal, choke shaft	1
25	†	93C116-2X2	Retainer, choke shaft seal	1
26	†	93T315B6-4	Screw, choke plate	2
27		93C102-116	Plate, choke	1
28	†	93CR137-19	Plug, choke shaft hole	1
29	†	93PH499	Washer, fuel valve seat	1
30	†	93C81-1-40	Valve and seat, fuel	1
31	†	93C120-4	Axle, float	1
32		93C85-119	Float	1
33	†	93CT48-6	Seal washer, discharge tube	1
34	†	93C66-116-3-1	Jet, discharge, idle well and well vent	1
35	†	93C142-69	Gasket, bowl to body	1
36	†	93C52-7-33	Jet, main (L56)	1
—		93C52-7-36	Jet, main (L56B)	1
37	†	93T546-24	Washer, main jet (NLA)	1
38		93B3-123A	Bowl, fuel	1
39		93T91-3	Plug, bowl drain	1
40	†	93T301S10-10	Screw, bowl to body assembly	4
—		93K12054	Kit, repair (L56) (NLA)	1
—		93LQ39	Kit, repair (L56B)	1
—		93C181-337	Gasket set	1

† Parts included in repair kit

DESCRIPTION

The Zenith 87-Series is a horizontal carburetor with a concentric fuel bowl. It is a "balanced" carburetor, because all air for fuel chamber and metering well ventilation and idling must come through the air cleaner. Air cleaner restrictions have a minimum influence on the fuel-air ratio when a carburetor is thus "balanced".

The main jet and discharge jet are centrally located. The metering well which completely surrounds the discharge jet is in the center of the fuel bowl assembly. This construction permits extremely high angle operation in any direction.

The venturi, which is part of the throttle body casting, measures the volume of air that passes through the carburetor. In selecting the venturi size, the smallest size that will permit full power development should be used.

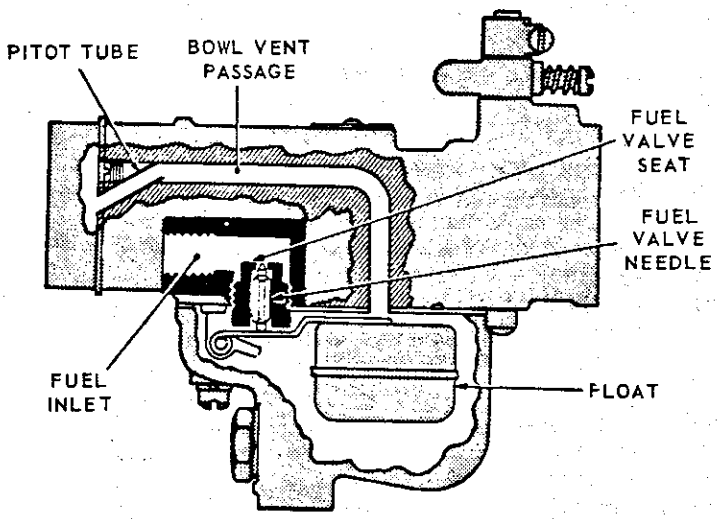


Fig. 1 FUEL SUPPLY SYSTEM

OPERATION

FUEL SUPPLY SYSTEM (Fig. 1)

Fuel under normal pressure entering the float chamber through the fuel valve seat is controlled by the twin float which, moving on its axle, closes the needle valve when the fuel reaches the proper level in the bowl.

IDLE SYSTEM (Fig. 2)

At idling speeds the throttle plate is almost closed, thus a very high suction exists at the edge of the throttle plate where the idle discharge holes are located. All fuel for idling and part throttle operation is supplied through the main jet. Fuel from the float chamber flows through the main jet into the metering well. Fuel for idling is drawn from this well through the calibration, or metering orifice, in the center of the idling jet. As the fuel reaches the idling channel it is mixed with air which is admitted through a calibrated orifice in the channel from the inside of the air intake to form an emulsion. This emulsion is discharged into the air stream, to form the idling mixture, through two holes one of which is controlled by the idle adjusting needle. Turning the adjusting needle counterclockwise (out) permits more of the emulsion to reach the air stream and make the idling mixture richer while turning the needle in (clockwise) cuts off the amount of the emulsion reaching the air stream and makes the mixture leaner.

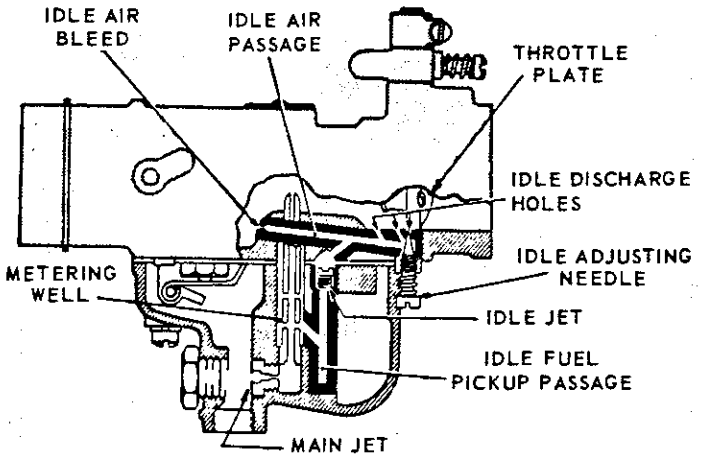


Fig. 2 IDLE SYSTEM

HIGH SPEED SYSTEM (Fig. 3)

As the throttle is opened, the suction on the idling system diminishes, but the increased volume of air entering the engine through the venturi creates sufficient vacuum (suction) on the discharge jet to draw an emulsion of fuel and air from the metering well which receives its fuel from the main jet and its air from the well vent. The flow characteristics of the discharge jet are influenced by the size, location, and number of holes in the sides of that part of the jet which is in the metering well, as well as by

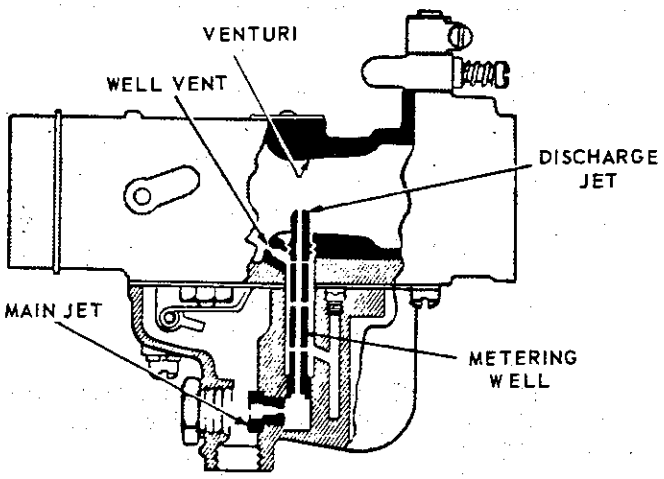


Fig. 3 HIGH SPEED SYSTEM

the sizes of the discharge jet orifice, the size of the main jet, and the size of the well vent. The well vent is located in the air intake and permits air to enter the top of the metering well around the outside of the discharge jet. The flow of fuel through the main jet is controlled by the size of main jet opening.

CHOKE SYSTEM (Fig. 4)

Starting a cold engine requires a much richer mixture of fuel and air. Moving the choke lever to close the choke plate restricts the air entering the carburetor (except at the pitot tube, Fig. 1, to the bowl vent) and increases the suction on the idling system which makes the mixture richer.

STARTING THE ENGINE

Before cranking the engine, the carburetor throttle should be opened a little to expose both idle discharge holes to suction. The choke should be fully closed until the engine starts, then opened a little to prevent stalling from being over-choked, then when the engine is fully warmed up the choke can be returned to wide open position and the throttle closed to the idling position.

ADJUSTMENTS

Adjust the throttle stop screw to obtain the desired idling speed by turning screw in (clockwise) to increase speed and out (counter-clockwise) to decrease engine speed.

Adjust the idle adjusting needle to obtain smooth idling of the engine at idling speed. Turn the needle out (counter-clockwise) to make the mixture richer, and in (clockwise) to make it leaner.

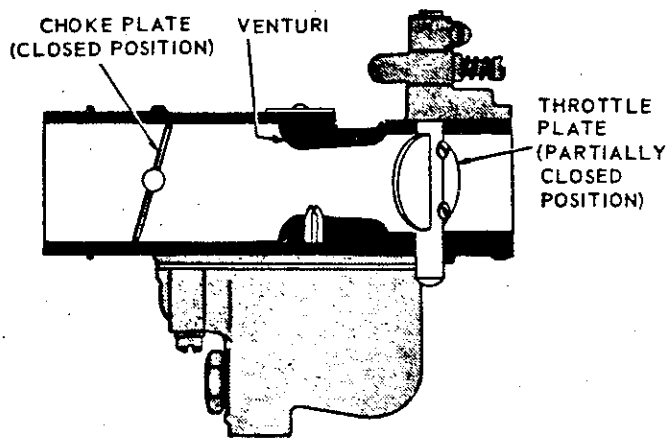


Fig. 4 CHOKE SYSTEM

SERVICE AND REPAIR PROCEDURE

IDENTIFY CARBURETOR

Check the numbers on the metal identification disc pinned to the top of the throttle body or indented in it. The plain number is the Zenith assembly number, the number with the letter "L" pre-fixed to it is Teledyne Wisconsin Motor's part number for the complete assembly.

EXPLODED VIEW (Page 3)

The exploded view identifies the serviceable component parts of the carburetor and shows their relationship to the complete assembly. Use the key numbers on the exploded view to identify and locate parts when performing both the disassembly and assembly operations.

DISASSEMBLY

SEPARATE CARBURETOR BODIES

Remove the three bowl assembly screws (45, 46) and separate fuel bowl (39) from throttle body (26).

DISASSEMBLE FUEL BOWL

1. Remove the main jet plug (43) and fibre washer (42), using a 9/16" open end wrench.
2. Remove the main jet (41) and fibre washer (40), using Zenith Tool No. C161-83 main jet wrench.
3. Remove the Idle Jet (38), using a small screwdriver.
4. Remove the bowl drain plug (44).

DISASSEMBLE THROTTLE BODY

1. Remove the float axle (35) by pressing against the end with the blade of a screwdriver.
2. Remove the float (36).
3. Remove the fuel valve needle (31), using the fingers.
4. Remove the fuel bowl to throttle body gasket (37).
5. Remove the main discharge jet (32), using a small screwdriver.
6. Remove the fuel valve seat (31) and fibre washer (30), using Zenith Tool No. C161-85.
7. Remove the idle adjusting needle (17) and spring (18).

CLEANING

Thoroughly clean all metal parts in Bendix Metalclene or Speedclene and rinse in cleaning solvent. Blow out all passages in throttle body and fuel bowl with reduced air pressure. Be sure all carbon deposits have been removed from throttle bore and idle discharge holes. Reverse the flow of compressed air through all passages to insure the removal of all dirt. **NEVER USE A DRILL OR WIRE TO CLEAN OUT JETS OR IDLE HOLES.**

INSPECTION OF PARTS

1. Float Assembly – Replace if loaded with gasoline, damaged or if float axle bearing is worn excessively. Inspect float lever for wear at point of contact with fuel valve needle. Replace if wear is excessive.
2. Float Axle – Replace if any wear has occurred on the bearing surface.
3. Fuel Valve (Needle & Seat) Assembly – Replace as a complete unit. Wear of any of these parts can seriously affect the operation of the float.

4. Idle Adjusting Needle – Inspect tapered end of the needle to make sure it is smooth and free of grooves. Replace if pitted or grooved.
5. Gaskets, Seal and Retainer – Replace all gaskets, throttle shaft seal and retainer each time the carburetor is overhauled.
6. Check Specifications. Verify the correctness of the following parts. Numbers will be found on the parts. Main Jet, Idling Jet and Fuel Valve.

REASSEMBLY

ASSEMBLY OF THROTTLE BODY

1. Install the fuel valve seat (31) and fibre washer (30), using Zenith Tool No. C161-85.
2. Install the main discharge jet (32), using a small screwdriver.
3. Install fuel valve needle in seat (31), followed by float (36) and float axle (35). NOTE: Insert tapered end of float axle (35) into float bracket on side opposite slot and push through the other side. Press float axle (35) into slotted side until the axle is centered in bracket.
4. FLOAT SETTING
   a. Fuel Level. Check position of float assembly (36), for correct measurement to obtain proper fuel level by using a depth gage. NOTE: Do not bend, twist, or apply pressure on the float body.
   b. With bowl cover assembly (26) in an inverted position, viewed from free end of float (36), the float body must be centered and at right angles to the machined surface. The float setting is measured from the machined surface (no gasket) of float bowl cover to top side of float body at highest point. This measurement should be 31/32", plus or minus 1/32".
   c. Bending Float Lever. To increase or decrease distance between float body (36) and machined surface (26) use long nosed pliers and bend lever close to float body. NOTE: Replace with new float if position is off more than 1/16".
5. Install throttle body to fuel bowl assembly gasket (37) on machined surface of throttle body (26).
6. Install idle adjusting needle (17) and spring (18). Screw needle IN (clockwise) until it seats lightly against the idle discharge hole, then back it out 1½ turns as a preliminary idle adjustment.

REASSEMBLE FUEL BOWL

1. Install the main jet (41) and fibre washer (40), using Zenith Tool No. C161-83 main jet wrench.
2. Install the main jet hex plug (43) and fibre washer (42), using a 9/16" open end wrench.
3. Install the idle jet (38), using a small screwdriver.
4. Install the bowl drain plug (44).

REASSEMBLE CARBURETOR BODIES

Install the three bowl assembly screws (45, 46) through the fuel bowl and into the throttle body and draw down firmly and evenly.

SPECIAL TOOLS

The special tools recommended are:

1. C161-83 Main Jet Wrench.
2. C161-85 Fuel Valve Seat Wrench.

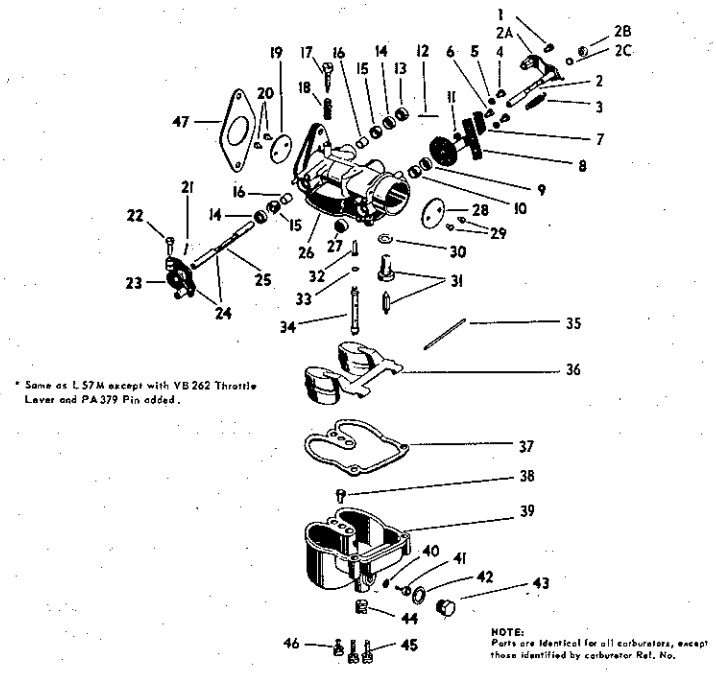
L57 Series (Zenith Model 87A8 Carburetor)

USE WITH MODELS VP4D, VG4D, VH4D, W4-1770

CARB. REF. NO.	ZENITH ASSEM. NO.	WISCONSIN PART NO.	WIS. ENGINE MODEL
1	11288	L57	VP4D
2	11532	L57-1	VG4D
3	12347	L57B	VG4D
4	13401	L57E	VG4D
5	13714	L57G	VH4D
6	13821	L57H	VH4D
7	13863	L57K	VH4D
8	13884	L57M	W4-1770
9		L57M1*	W4-1770
10		L57M3	

L57FS1 – no longer available
L57LS1 – use L57MS1
LZ57-8 – same as L57-1

* Same as L57M except with VB262 throttle lever and PA379 pin added.



ITEM	PART NO.	DESCRIPTION	QTY
1	93T8S8-7	Screw, lever swivel (for 1-5, 8) (NLA)	1
2	93C105-3	Shaft, choke (for 1-6)	1
2A	93C106-2	Lever assembly, choke (for 1-5, 8)	1
—	93CR106-3A	Lever, choke (for 6,7)	1
2B	93T22S8	Nut, choke lever	1
2C	93T41-10	Lock washer, choke lever nut	1
3	93C112-12	Spring, choke lever (for 1-4, 8)	1
—	93C112-21	Spring, choke lever (for 5, 7)	1
4	93C140-58	Screw, bracket (for 1-5, 7, 8)	2
5	93T41-8	Lock washer, bracket (for 1-5, 7, 8)	2
6	93T8S8-8	Screw, tube clamp (for 1-5, 8)	1
7	93C110-7	Clamp, bracket (for 1-5, 8)	1
8	93C109-60	Bracket, choke (for 1-5, 7, 8)	1
9	† 93C131-4X2	Retainer, choke shaft packing (for 1-3)	1
10	† 93T57-4	Washer, choke shaft packing (for 1-3)	1

(continued on page 37)

L57 Series (Zenith Model 87A8 Carburetor) (Cont.)

USE WITH MODELS VP4D, VG4D, VH4D, W4-1770 (see pg. 36)

ITEM	PART NO.	DESCRIPTION	QTY
11	93T21S8	Nut, clamp screw (for 1-5, 8)	1
12	93T63-9	Pin, washer retaining (for 1-3)	1
13	93C130-4	Washer, shaft thrust (for 1-3)	1
14	† 93T52-57	Retainer, throttle shaft packing (one required for 4-7)	2
15	† 93T48-9	Seal, throttle shaft (one additional for 4-8)	1
16	93C9-75	Bushing, throttle shaft	2
17	† 93C46-49	Needle, idle adjusting	1
18	93C111-155	Spring, adjusting needle	1
19	93C21-42	Plate, throttle	1
20	† 93T315S5-4	Screw, throttle plate	2
21	93T63-9	Roll pin, throttle lever	1
22	93T8S8-10	Screw, lever stop	1
23	93CR27-241-1	Lever and stop, throttle (for 1, 2, 4)	1
—	93CR27-465	Lever and stop, throttle (for 6, 7)	1
—	93CR27-307	Lever and stop, throttle (for 3)	1
—	93CR27-451	Lever and stop, throttle (for 5)	1
—	93CR27-472	Lever and stop, throttle (for 8)	1
24	†† 93C29-1037	Shaft and lever, throttle (for 1, 2)	1
—	†† 93C29-1429	Shaft and lever, throttle (for 3)	1
—	†† 93C29-1955	Shaft and lever, throttle (for 6, 7)	1
—	†† 93C29-1688	Shaft and lever, throttle (for 4)	1
—	†† 93C29-1886	Shaft and lever, throttle (for 5)	1
—	†† 93C29-1987	Shaft and lever, throttle (for 8)	1
25	N.S.S.	Shaft, throttle	1
26	N.S.S.	Body, throttle	1
27	† 93CR37-1X1	Plug, choke shaft hole (one additional in throttle shaft hole (for 4-7)	1
28	93C102-113	Plate, choke	1
29	† 93T315S5-4	Screw, choke plate	2
30	†Δ 93T56-20	Fiber washer, fuel valve seat	1
31	† 93C81-17-35	Valve and seat, fuel (for 1-3)	1
—	† 93C81-66-35	Valve and seat, fuel (for 4-8)	1
32	93C66-96-40	Jet, discharge (for 1)	1
—	93C66-104-42	Jet, discharge (for 2-4) (NLA)	1
—	93C66-113-50	Jet, discharge (for 8)	1
—	93C66-124-40	Jet, discharge (for 5-7)	1
33	†Δ 93T56-73	Fiber washer, well	1
34	93C76-50-1	Well, metering (for 1-7) (NLA)	1
—	93C76-50-3	Well, metering (for 8)	1
35	† 93C120-18	Axle, float (for 1-3)	1
—	† 93C120-81	Axle, float (for 4-8)	1
36	93C85-97	Float assembly	1
37	†Δ 93C142-55	Gasket, bowl to body	1
38	93C52-2-12	Jet, idle	1
39	93B3-129A	Bowl, fuel	1
40	†Δ 93T56-24	Fiber washer, main jet (NLA)	1
41	93C52-7-29	Jet, main (for 5-7)	1
—	93C52-7-34	Jet, main (for 1)	1
—	93C52-7-38	Jet, main (for 2-4) (use 93T56-73 fiber washer)	1
—	93C52-7-[illegible]	Jet, main (for 8)	1
42	† PH499	Fiber washer, passage plug	1
43	93C138-24	Plug, main passage	1
44	93T91-1	Plug, 1/8" pipe (bowl drain)	1
45	93T301S8-14	Screw, bowl to body (long)	2
46	93T301S8-9	Screw, bowl to body (short)	1
47	† QC12A	Gasket, flange (Zenith C141-4-6)	3
—	93C181-296	Gasket set	1
—	LQ37	Repair kit (for 1-8)	1

† Parts included in repair kit

†† Shaft and lever assemblies item 24, includes items 12, 13, 21-23

Δ Gasket Set

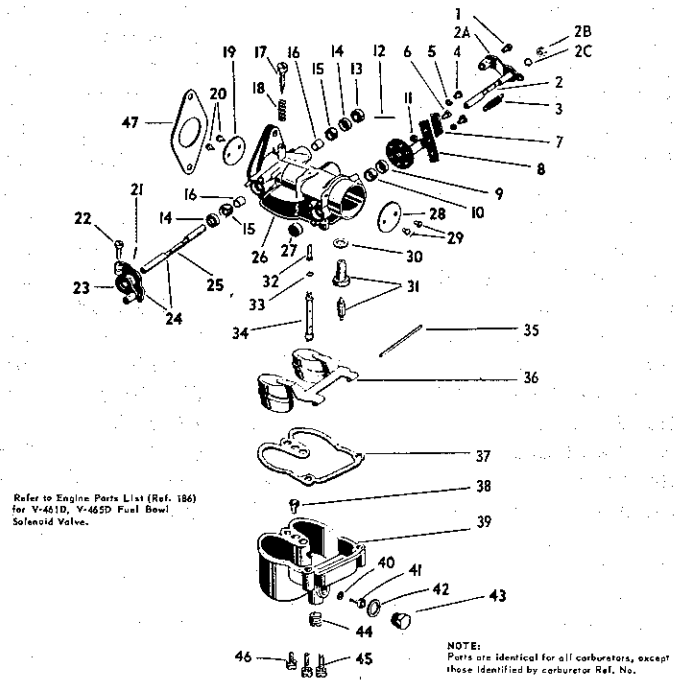
N.S.S. – Not sold separately

NOTE: The idle air bleed bushing and well vent bushing are calibrated parts of the throttle body (item 26) and are not readily removable.

L57, L77 Series (Zenith Model 87A8 Carburetor)

USE WITH MODELS VP4D, VG4D, VH4D, V460D, V461D, V465, V465D

CARB. REF. NO.	ZENITH ASSEM. NO.	WISCONSIN PART NO.	WIS. ENGINE MODEL
1	11288	L57	VP4D
2	11532	L57-1	VG4D
3	12347	L57B	VG4D
4	13401	L57E	VG4D
5	13714	L57G	VH4D
14	12708	LZ77S1 LZ77BS1 LZ77GS1	V460D V461D V465
15	12825	LZ77CS1 (with auto-choke) (use LZ77HS1)	V465D V461D



ITEM	PART NO.	DESCRIPTION	QTY.
1	93T8S8-7	Screw, lever swivel (for 1-5, 14) (NLA)	1
2	93C105-3	Shaft, choke (for 1-5, 14)	1
—	93C105-302	Shaft, choke (for 15)	1
2A	93C106-2	Lever, choke (for 1-5, 14)	1
—	93C106-13AE	Lever assembly, choke clamp (for 15)	1
2B	93T22S8	Nut, choke lever (for 1-5, 14)	1
2C	93T41-10	Lock washer, choke lever nut	1
3	PM210	Spring, choke lever (for 1-4, 14)	1
—	93C112-21	Spring, choke lever (for 5)	1
4	93C140-58	Screw, bracket (for 1-5, 14)	2
5	93T41-8	Lock washer, bracket (for 1-5, 14)	2
6	93T8S8-8	Screw, tube clamp (for 1-5, 14)	1
7	93C110-7	Clamp, bracket (for 1-5, 14)	1
8	93C109-60	Bracket, choke (for 1-5, 14)	1
9	† 93C131-4X2	Retainer, choke shaft packing (for 1-3, 14, 15)	1
10	† 93T57-4	Washer, choke shaft packing (for 1-3, 14, 15)	1
11	93T21S8	Nut, clamp screw (for 1-5, 14)	1
12	93T63-9	Pin, washer retaining (for 1-3, 14, 15)	1
13	93C130-4	Washer, shaft thrust (for 1-3, 14, 15)	1

(continued on page 39)

L57, L77 Series (Zenith Model 87A8 Carburetor) (Cont.)

USE WITH MODELS VP4D, VG4D, VH4D, V460D, V461D, V465, V465D (see pg. 38)

ITEM	PART NO.	DESCRIPTION	QTY
14	† 93T52-57	Retainer, throttle shaft packing (one required for 4, 5)	2
15	† 93T48-9	Seal, throttle shaft	2
		(one additional for 4, 5)	1
16	93C9-75	Bushing, throttle shaft	2
17	† 93C46-49	Needle, idle adjusting	1
18	93C111-155	Spring, adjusting needle	1
19	93C21-42	Plate, throttle	1
20	† 93T315S5-4	Screw, throttle plate	2
21	N.S.S.	Roll pin, throttle lever	1
22	93T8S8-10	Screw, lever stop	1
23	93CR27-241-1	Lever and stop, throttle (for 1, 2, 4, 14, 15)	1
—	93CR27-307	Lever and stop, throttle (for 3)	1
—	93CR27-451	Lever and stop, throttle (for 5)	1
24	†† 93C29-1037	Shaft and lever, throttle (for 1, 2)	1
—	†† 93C29-1429	Shaft and lever, throttle (for 3)	1
—	†† 93C29-1386	Shaft and lever, throttle (for 14, 15)	1
—	†† 93C29-1688	Shaft and lever, throttle (for 4)	1
—	†† 93C29-1886	Shaft and lever, throttle (for 5)	1
25	N.S.S.	Shaft, throttle	1
—	93T52-24	Washer, throttle lever spacer (for 14, 15) (not illustrated)	1
26	N.S.S.	Body, throttle	1
27	† 93CR37-1X1	Plug, choke shaft hole (for 1-5, 14) (one additional in throttle shaft hole for 4, 5)	1
28	93C102-113	Plate, choke (for 1-5)	1
—	93C102-123	Plate, choke (for 14)	1
—	93C102-129	Plate, choke (for 15)	1
29	† 93T315S5-4	Screw, choke plate	2
30	†Δ 93T56-20	Fiber washer, fuel valve seat	1
31	† 93C81-17-35	Valve and seat, fuel (for 1-3, 14, 15)	1
—	† 93C81-66-35	Valve and seat, fuel (for 4, 5)	1
32	93C66-96-40	Jet, discharge (for 1)	1
—	93C66-104-42	Jet, discharge (for 2-4)	1
—	93C66-104-45	Jet, discharge (for 14, 15)	1
—	93C66-124-40	Jet, discharge (for 5)	1
33	†Δ 93T56-73	Fiber washer, well	1
34	93C76-50-1	Well, metering (for 1-5) (NLA)	1
—	93C76-55-1	Well, metering (for 14, 15)	1
35	93C120-18	Axle, float (for 1-3, 14, 15)	1
—	† 93C120-81	Axle, float (for 4, 5)	1
36	93C85-97	Float assembly	1
37	†Δ 93C142-55	Gasket, bowl to body	1
38	93C52-2-12	Jet, idle	1
39	93B3-129A	Bowl, fuel (replaces 93B3-98A)	1
40	†Δ 93T56-24	Fiber washer, main jet (NLA)	1
41	93C52-7-29	Jet, main (for 5)	1
—	93C52-7-34	Jet, main (for 1)	1
—	93C52-7-38	Jet, main (for 2-4)	1
—	93C52-7-42	Jet, main (for 14, 15)	1
42	PH299	Fiber washer, passage plug	1
43	93C138-24	Plug, main passage	1
44	93T91-3	Plug, 1/8" pipe (bowl drain)	1
45	93T301S8-14	Screw, bowl to body (long)	2
46	93T301S8-9	Screw, bowl to body (short)	1
47	† QC12A	Gasket, flange (Zenith C141-4-6)	3
—	93C162-71	Auto choke assembly (for 15) (not illustrated)	1
—	93B190-30A	Auto choke adapter assembly (for 15) (not illustrated)	1
—	93C146-25	Auto choke adapter gasket (for 15) (not illustrated)	1
—	93C181-296	Gasket set	1
—	LQ37	Repair kit (for 1-5, 14, 15)	1

† Parts included in repair kit

†† Shaft and lever assemblies item 24, includes items 12, 13, 21-23

Δ Gasket set

N.S.S. – Not sold separately

NOTE: The idle air bleed bushing and well vent bushing are calibrated parts of the throttle body (item 26) and are not readily removable.

V465D Components List For 77 Series Carburetors

ITEM		PART NO.	DESCRIPTION	L-G	LZG	L-H	LZH	L-J	LZJ
1		93C105-3	Shaft, choke	1	1			1	1
—		93C105-302	Shaft, choke			1	1		
2		93C106-2	Lever assembly, choke clamp	1	1			1	1
—		93C106-13AE	Lever assembly, choke clamp			1	1		
3		93T22S8	Nut, choke lever	1	1			1	1
—		93T21S10	Nut, choke lever			1	1		
4		93T41-10	Lock washer, choke lever nut	1	1			1	1
—		93T52-26	Lock washer, choke lever nut			1	1		
5		93C112-12	Spring, choke lever	1	1			1	1
6		93C140-58	Screw and washer, bracket	2	2			2	2
7		93T8S8-6	Screw, tube clamp	1	1			1	1
8		93C110-6	Clamp, bracket	1	1			1	1
—		93C110-7	Clamp, bracket (NLA)						
9		93CR109-60	Bracket, choke	1	1			1	1
10	†	93C131-4X2	Retainer, choke shaft packing (NLA)	1	1	1	1	1	1
11	†	93T57-4	Washer, choke shaft packing	1	1	1	1	1	1
12		93T21S8	Nut, clamp screw	1	1			1	1
13	†	93T52-57	Retainer, choke shaft packing	2	2	2	2	2	2
14	†	93T48-9	Seal, throttle shaft	2	2	2	2	2	2
15		93C9-75	Bushing, throttle shaft	2	2			2	2
16	†	93C46-49	Needle, idle adjusting	1	1	1	1	1	1
17		93C111-155	Spring, adjusting needle	1	1			1	1
—		93C111-120	Spring, adjusting needle			1	1		
18		93C21-42	Plate, throttle	1	1	1	1	1	1
19	†	93T315S5-4	Screw, throttle plate	2	2	2	2	2	2
20		N.S.S	Roll pin, throttle lever	1	1			1	1
21		93T8S8-10	Screw, lever stop	1	1			1	1
—		93T8S8-10NP	Screw, lever stop			1	1		
22		93CR27-241-1	Lever and stop throttle	1	1	1	1	1	1
23	††	93C29-2201	Shaft and lever assembly, throttle	1	1	1	1	1	1
24		N.S.S.	Shaft, throttle	1	1	1	1	1	1
25		93BR2-193J26	Body, throttle	1	1	1	1	1	1
26		93C102-123	Plate, choke	1	1			1	1
—		93C102-129	Plate, choke			1	1		
27	†	93T315S5-4	Screw, choke plate	2	2	2	2	2	2
28	†Δ	93T56-20	Fiber washer, fuel valve seat	1	1	1	1	1	1
29	†	93C81-17-35	Valve and seat, fuel	1	1	1	1	1	1
30		93C66-96-48	Jet, discharge	1	1	1	1	1	1
31	†Δ	93T56-73	Fiber washer, well	1	1	1	1	1	1
32		93C76-55-1	Well, metering	1	1	1	1	1	1
33	†	93C120-81	Axle , float	1	1	1	1	1	1
34		93C85-97	Float assembly	1	1	1	1	1	1
35	†Δ	93C142-55	Gasket, bowl to body	1	1	1	1	1	1
36		93C52-2-12	Jet, idle	1	1	1	1	1	1
37		93B3-129A	Bowl, fuel	1	1	1	1	1	1
38	†Δ	93T56-24	Fiber washer, main jet (NLA)	1	1	1	1	1	1

(continued on page 41)

V465D Components List For 77 Series Carburetors (Cont.)

ITEM	PART NO.	DESCRIPTION	L-G	LZG	L-H	LZH	L-J	LZJ
39	93C52-7-36	Jet, main	1	1	1	1	1	1
40 †Δ	PH499	Fiber washer, passage plug	1	1	1	1	1	1
41	93C138-24	Plug, main passage	1	1	1	1	1	1
42	93T91-3	Drain plug	1	1				
—	93T91-1	Drain plug			1	1	1	1
43	93T301-1S8-16	Screw, bowl to body (long)	2	2	2	2	2	2
44	93T301S8-9	Screw, bowl to body (short)	1	1	1	1	1	1
45 †	93C141-4-6	Gasket, flange	3	3	1	1	3	3
†††	93C162-71	Auto choke assembly	1	1				
†††	93B190-30A	Auto choke assembly			1	1		
†††	93C146-25	Auto choke adapter gasket			1	1		
46	93C181-296	Gasket set	1	1	1	1	1	1
47	LQ37	Repair kit	1	1			1	1
48	YC83AS1	Solenoid and clip assembly (includes 40 and 50)		1		1		1
49	93T52-74	Spacer		1		1		1
50	PK162	Locking tab		1		1		1
51 †††	93T201-12	Elbow fitting			1	1		

† Parts included in repair kit
†† Shaft and lever assembly, item 23, includes items 13, 20-22, 24, 25
††† Part not illustrated
Δ Gasket set

L63 Series (Zenith Model 68-7 Carburetor)

The Zenith 68-7 Series carburetor is of an up-draft single venturi design with a 1" S.A.E. barrel size and a 7/8" S.A.E. flange. The carburetors are made with selective fuel inlet, and with or without a main jet adjustment. These carburetors are "balanced" and "sealed", and the semi-concentric fuel bowl allows operation to quite extreme angles without flooding or starving.

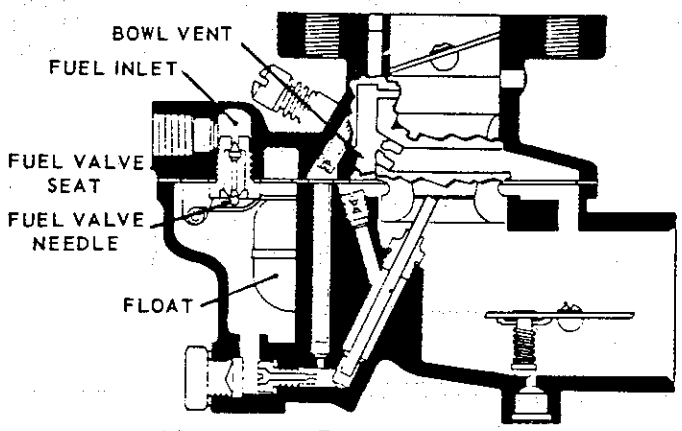


Fig. 1

Fuel supply system, Fig. 1, is made up of a threaded fuel inlet, fuel valve seat, fuel valve needle, float and fuel bowl. Fuel travels through the fuel valve seat and passes around the fuel valve and into the fuel bowl. The level of the fuel in the fuel chamber is regulated by the float through its control of the fuel valve. The fuel valve does not open and close alternately but assumes an opening, regulated by the float, sufficient to maintain a proper level in the fuel chamber equal to the demand of the engine according to its speed and load.

The inside bowl vent as illustrated by the passage originating in the air intake and continuing through to the fuel bowl, is a method of venting the fuel bowl to maintain proper air fuel mixtures even though the air cleaner may become restricted. This balancing is frequently referred to as an "inside bowl vent".

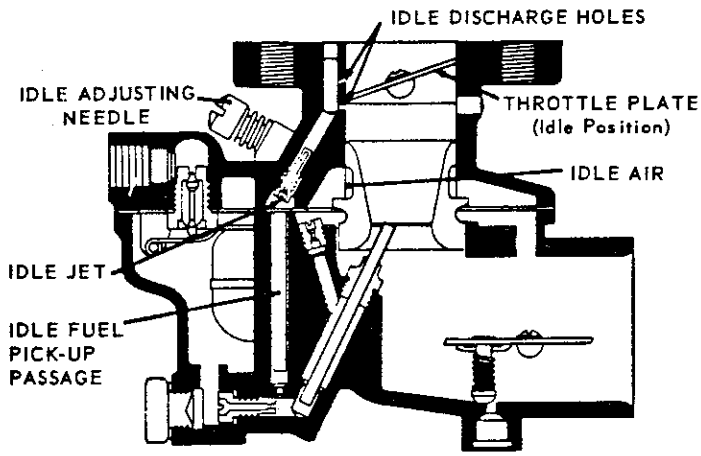


Fig. 2

Idle system, Fig. 2, consists of two idle discharge holes, idle air passage, idle adjusting needle, idle jet, and fuel pick-up passage. The fuel for idle is supplied through the main jet to a well directly below the main discharge jet. The pick-up passage is connected to this well by a restricted drilling at the bottom of this passage. The fuel travels through this channel to the idle jet calibration. The air for the idle mixture originates back of (or from behind) the main venturi. The position of the idle adjusting needle in this passage controls the suction on the idle jet and thereby the idle mixture. Turning the needle in closer to its seat results in a greater suction with a smaller amount of air and therefore a richer mixture. Turning the needle out away from its seat increases the amount of air and reduces the suction, and a leaner mixture is delivered. The fuel is atomized and mixed with the air in the passage leading to the discharge holes and enters the air stream at this point.

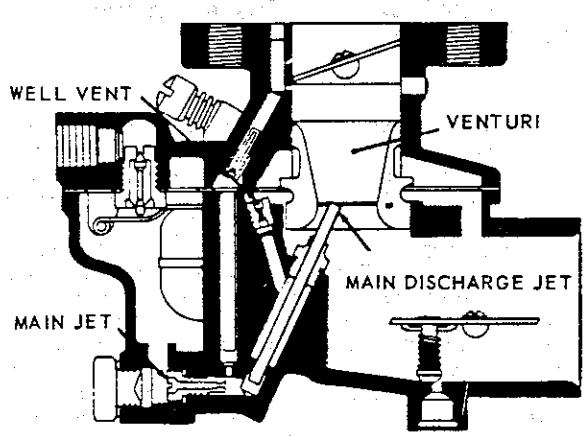


Fig. 3

High speed system, Fig. 3, controls the fuel mixture at part throttle speeds and at wide open throttle. This system consists of a **venturi**, controlling the maximum volume of air admitted into the engine; the **main jet**, which regulates the flow of fuel from the float chamber to the main discharge jet; the **well vent**, which maintains uniform mixture ratio under changing suction and engine speeds; and a **main discharge jet**, which delivers the fuel into the air stream.

The main jet controls the fuel delivery during part throttle range from about one-quarter to full throttle opening. To maintain a proper mixture, a small amount of air is admitted through the well vent into the discharge jet through air bleed holes in the discharge jet at a point below the level of fuel in the metering well.

The passage of fuel through the high speed system is not a complicated process. The fuel flows from the fuel chamber through the main jet and into the main discharge jet where it is mixed with air admitted by the well vent, and the air-fuel mixture is then discharged into the air stream of the carburetor.

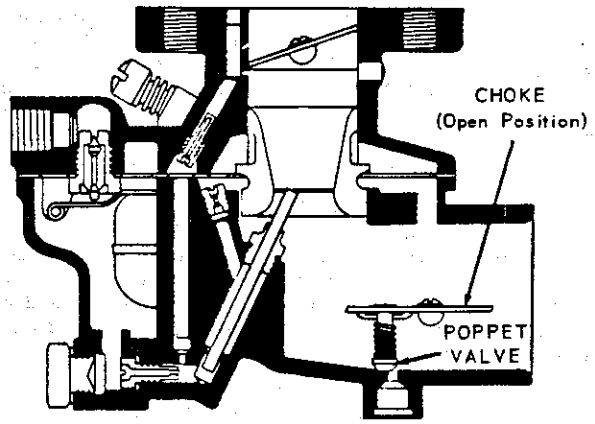


Fig. 4

Choke system, Fig. 4, consists of a valve mounted on a shaft located in the air entrance and operated externally by a lever mounted on the shaft. The choke valve is used to restrict the air entering the carburetor. This increases the suction on the jets when starting the engine. The choke valve is of a "semi-automatic" type, having a poppet valve incorporated in its design, which is controlled by a spring. The poppet valve opens automatically when the engine starts and admits air to avoid over-choking or flooding of the engine. The mixture required for starting is considerably richer than that needed to develop power at normal temperatures. As the engine fires and speed and suction are increased, the mixture ratio must be rapidly reduced. This change is accomplished through adjustment of the choke valve and the automatic opening of the poppet valve to admit more air when the engine fires.

FLOAT SETTING, Fig. 5

If float position is not to the dimension shown, use a long nose pliers and bend lever close to float body, to obtain correct float setting.

FUEL LEVEL

The liquid level in float chamber is 17/32 to 19/32 inch below top of float bowl. This level was established with a #35 fuel valve seat at 1½ p.s.i. and a sight tube approximately 1/4 to 9/32 inch i.d.

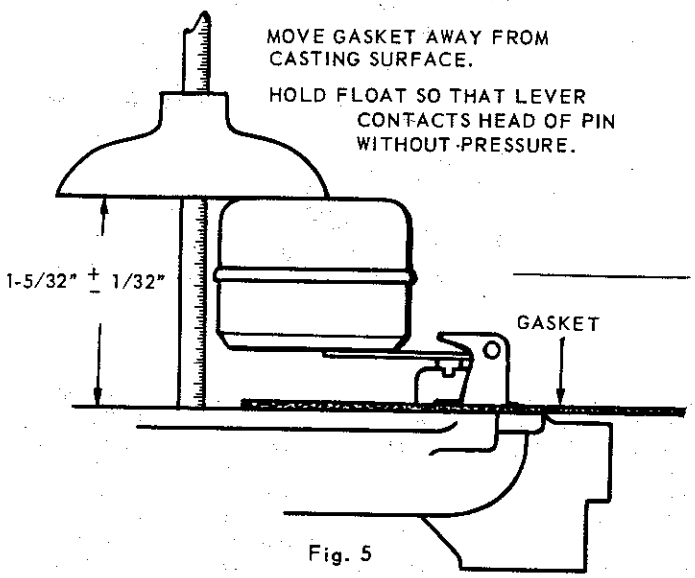
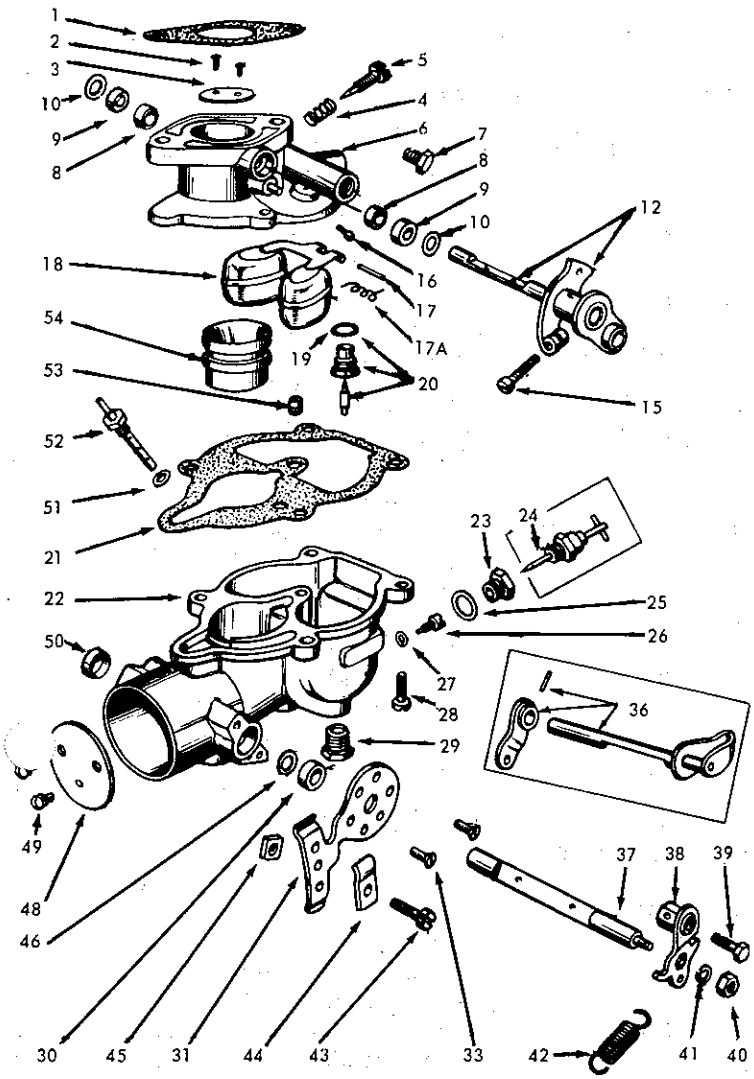


Fig. 5

L63 Series (Zenith Model 68-7 Carburetor)

USE WITH MODELS AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD



CARB. REF.	ZENITH NO.	WISCONSIN NO.
1	12098A•	L63
2	12188G•	L63A
3	12158D•	L63C
4	12325	L63D
5	12199E•	L63E
6	12205A•	L63F
7	12235E•	L63G
8	12236	L63H
9	12239C•	L63J (use L63C)
10	12234F•	L63K
11	12288C•	L63L (use L63CS1)
12	12300	L63M (NLA)
13	12599D•	L63N
14	12375D•	L63R
15	12448D•	L63U (NLA)
16	12449D•	L63V (NLA)
17	12545C•	L63W (NLA)
18	12543C•	L63Y, L63ES1
19	12546	L63Z (NLA)
20	12647	L63AA
21	12253A•	LZ63-2
22	12229D•	LZ63C
23	12238D•	LZ63C2
24	12744B•	L63AF, L63CS1
25	12982B•	L63AN
26	13201A•	L63AP
27	13238A•	L63AQ
28	13405A•	L63AV
29	13420A•	L63BC, L63BLS1
30	13449A•	L63BD
31	13694	L63BL
32	13757	L63BM
33	—	L63BP
34	—	L63BW
35	—	L63BY

NOTE: Beginning with this letter designation • bushings (Ref. 8) were discontinued.

* LZ63-16 Choke is on standard side.

* LZ63-1151 Choke is on opposite of standard, internally the same (same as L63S1 use VB262 swivel block).

* LZ63C13 same as L63C except needs VB243 choke lever to hook to antichoke. Also C13 has 1/8" pipe top on bottom for drip tube.

* L63BJ same as L63AQ, only difference is fuel inlet is on opposite side.

* For shaft and lever use 93C29-491 and PA379 and VB262 (taken from LZ63-11S1, same as standard L63).

* LZ63C13 same as L63C except needs VB243 choke lever to hook to auto choke, also no. 13 has 1/8" pipe top on bottom for drip tube.

L63 Series (Zenith Model 68-7 Carburetor)

USE WITH MODELS AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD (see pg. 44)

ITEM		PART NO.	DESCRIPTION	QTY
1	Δ	QC71A	Gasket, flange (Zenith no. C141-4-5)	1
2		93T315S5-4	Screw and washer, throttle plate	2
3		93C21-176	Plate, throttle (for all except 5, 7, 8, 10, 12, 14, 18; no. 32 for L63BM)	1
—		93C21-205	Plate, throttle (for 5, 7, 8, 10, 12, 14, 18)	1
4		93C111-17	Spring, idle needle	1
5	Δ	93C46-6	Needle, idle adjusting	1
6		— — —	Body, throttle (not available for service)	1
7		93T91-3	1/8" plug, fuel inlet R.H.	1
8		93C9-75	Bushing, throttle shaft (see note)	2
9	Δ	93T48-9	Seal, throttle shaft	2
10	Δ	93T52-57	Retainer, shaft seal (1 used for 28)	2
—		93C131-38	Cup plug (for 28)	1
12		93C29-491	Shaft and stop lever, throttle (for 1, 3, 6, 9, 11, 17, 19-23, 29, 31)	1
—		93C29-858	Shaft and stop lever, throttle (for 4)	1
—		93C29-926	Shaft and stop lever, throttle (for 5, 7, 8, 10, 14, 18)	1
—		93C29-1928	Shaft and stop lever throttle (for 32) (includes 12-21)	1
—		93C29-1418	Shaft and stop lever, throttle (for 25, 27)	1
—		93C29-1476	Shaft and stop lever, throttle (for 15, 16, 30)	1
—		93C29-858	Shaft and stop lever, throttle (for 2, 13, 24)	1
—		93C29-1475	Shaft and stop lever, throttle (for 12)	1
—		93C29-1584	Shaft and stop lever, throttle (for 26)	1
—		93C29-1607	Shaft and stop lever, throttle (for 28)	1
15		93T8S8-12	Screw, throttle stop (for all except 25, 27, 30)	1
—		93T8S8-10NP	Screw, throttle stop (for 25, 27, 30)	1
16		93C55-6-12	Jet, idle (for all except 25, 27, 29, 30)	1
—		93C55-6-10	Jet, idle (for 29, 30)	1
—		93C55-22-11	Jet, idle (for 25, 27)	1
17	Δ	93C120-4	Axle, float	1
17A		93C117-79	Spring, float (for all except 1, 6, 16, 21, 28)	1
18		93C85-103	Float and hinge assembly	1
19	†Δ	93T56-20	Washer, .040" thick fiber, solid type fuel valve and seat (for 93C81-17)	1
—	†Δ	93T56-70	Washer, .020" thick fiber, spring type fuel valve and seat (for 93C81-50)	1
20	Δ	93C81-17-35	Valve and seat, fuel (solid type) (for 1, 4-6, 8, 10, 13, 16, 21, 25, 27-31)	1
—	Δ	93C81-17-25	Valve and seat, fuel (solid type) (for 18, 20)	1
—	Δ	93C81-50-35	Valve and seat, fuel (spring type) (for 2, 3, 7, 9, 11, 12, 14, 15, 22-24, 26)	1
—	Δ	93C81-50-25	Valve and seat, fuel (spring type) (for 17, 19)	1
21	†Δ	93C142-74	Gasket, bowl to body	1
22		93B3-121B1	Bowl, fuel (for 1, 6, 20, 21)	1
—		93B3-121A3	Bowl, fuel (for 2, 5, 10, 12, 18)	1
—		93B3-121A1	Bowl, fuel (for 3, 7-9, 11, 14, 17, 19, 22, 24, 29, 31)	1
—		93B3-121B2	Bowl, fuel (for 4)	1
—		93B3-121A2	Bowl, fuel (for 13)	1
—		93B3-121E1	Bowl, fuel (for 15, 23, 30)	1
—		93B3-121F1	Bowl, fuel (for 16)	1
—		93B3-121D6	Bowl, fuel (for 25)	1
—		93B3-121A7	Bowl, fuel (for 26)	1
—		93B3-121A8	Bowl, fuel (for 27)	1
—		93B3-121B3	Bowl, fuel (for 28)	1
23		93C138-24	Plug, main jet passage (for 1, 3, 4, 8, 10, 15, 16, 19-24, 26, 28-31)	1

(continued on page 46)

L63 Series (Zenith Model 68-7 Carburetor) (Cont.)

USE WITH MODELS AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD (see pg. 44)

ITEM	PART NO.	DESCRIPTION	QTY
24	93C71-21	Adjustment, main jet (for 2, 5, 6, 7, 9, 11-14, 17, 18, 25, 27)	1
25	PH499	Washer (fiber), plug and adjustment	1
26	93C52-7-22	Jet, main (for 1, 4, 16, 20, 21, 28-30)	1
—	93C52-7-33	Jet, main (for 2, 13, 25, 27)	1
—	93C52-7-26	Jet, main (for 5, 7, 11, 12, 14, 17, 18)	1
—	93C52-7-25	Jet, main (for 6)	1
—	93C52-7-19	Jet, main (for 8)	1
—	93C52-7-30	Jet, main (for 9)	1
—	93C52-7-21	Jet, main (for 10)	1
—	93C52-7-23	Jet, main (for 3, 15, 19, 22-24, 26, 34, 35)	1
—	93C52-7-24	Jet, main (for 31)	1
27 †Δ	93T56-24	Washer (fiber), main jet (NLA)	1
28	93T301S10-10	Screws, bowl to body assembly	4
29	93T91-3	Plug, bowl drain	1
30 Δ	93C131-4X2	Retainer, choke shaft seal (NLA) (for 1-25, 27, 29-31)	1
— Δ	93T52-53	Retainer, choke shaft seal (for 26, 28)	1
31	93C109-60C	Bracket, choke (for 1, 3, 6-9, 11, 14-17, 19-21, 23, 24, 26, 29-31)	1
—	93C109-60C2	Bracket, choke (for 4, 13, 27)	1
—	93C109-60C1	Bracket, choke (for 22)	1
—	93C109-60E1	Bracket, choke (for 28)	1
—	93C109-60D1	Bracket, choke (for 32)	1
33	93C140-58	Screws, choke bracket assembly (for all except 2, 5, 10, 12, 18, 25)	2
36	93C108-280	Shaft and friction lever, choke (for 2)	1
—	93C108-279	Shaft and friction lever, choke (for 5, 10, 12, 18)	1
—	93C108-277	Shaft and friction lever, choke (for 25)	1
37	93C105-286	Shaft, choke (for all except 2, 5, 10, 12, 18, 25, 32)	1
38	93C106-2	Lever, choke (for all except 2, 5, 10, 12, 18, 25, 32)	1
39	93T8S8-7	Screw, choke lever swivel (NLA) (for all except 2, 5, 10, 12, 18, 25)	1
40	93T22S8	Nut, choke shaft (for all except 2, 5, 10, 12, 18, 25)	1
41	93T41-10	Lock washer, choke shaft nut (for all except 2, 5, 10, 12, 18, 25)	1
42	93C112-6	Spring, choke lever return (for all except 2, 5, 10, 12, 18, 25)	1
43	93T8S8-8	Screw, bracket clip (for all except 2, 5, 10, 12, 18, 25)	1
44	93C110-7	Clip, bracket tube (for all except 2, 5, 10, 12, 18, 25)	1
45	93T21S8	Nut, clamp screw (for all except 2, 5, 10, 12, 18, 25)	1
46 Δ	93T57-4	Seal, choke shaft (for all except 26, 28)	1
— Δ	93T48-9	Seal, choke shaft (for 26, 28)	1
48	93C101-80	Plate, choke (for all except 2, 13, 25, 27)	1
—	93C101-85	Plate, choke (for 2, 13, 25, 27)	1
49	93T315S5-4	Screw and washer choke plate (for all)	2
50 Δ	93CR37-1X1	Plug, choke shaft hole (for all except 2, 5, 10, 12, 18)	1
51 †Δ	93T56-48	Washer (fiber), discharge jet	1
52	93C66-114-60	Jet, discharge (for 1, 4, 6, 16, 20, 21, 28)	1
—	93C66-114-45	Jet, discharge (for 2, 13, 25, 27)	1
—	93C66-114-50	Jet, discharge (for 3, 9, 11, 15, 17, 19, 22-24, 26, 29-31)	1
—	93C66-114-40	Jet, discharge (for 5, 7, 8, 10, 12, 14, 18)	1
53	93C77-18-12	Jet, well vent (for 1, 4, 6, 16, 20, 21, 28)	1
—	93C77-18-13	Jet, well vent (for 2, 13, 25, 27)	1

(continued on page 47)

L63 Series (Zenith Model 68-7 Carburetor) (Cont.)

USE WITH MODELS AENL, AGND, VH4D, MVH4D, THD, VH4DO, TRA10D, TJD (see pg. 44)

ITEM	PART NO.	DESCRIPTION	QTY
—	93C77-18-22	Jet, well vent (for 3, 9, 11, 15, 17, 19, 22-24, 26, 29-31)	1
—	93C77-18-17	Jet, well vent (for 5, 7, 8, 10, 12, 14, 18)	1
54	93B38-74-18	Venturi (for 1, 3, 4, 6, 9, 11, 15-17, 19-24, 26, 28)	1
—	93B38-74-19	Venturi (for 2, 13, 25, 27, 29-31)	1
—	93B38-74-17	Venturi (for 5, 7, 8, 10, 12, 14, 18)	1
—	93C2454AD1X2	Lever, throttle clamp (for 15, 16, 30) (not illustrated)	1
—	93T8B810-9	Screw, lever clamp (for 15, 16, 30) (not illustrated)	1
—	93T8B8-10	Screw, lever swivel (for 15, 16, 30) (not illustrated)	1
—	93C181-329	Gasket kit (not illustrated)	1
—	LQ33	Repair parts kit (with spring type fuel valve and seat) (for 2, 3, 7, 9, 11, 12, 14, 15, 22-24, 26, 32, 33)	1
—	LQ39	Repair parts kit (with solid type fuel valve and seat) (for 1, 4-6, 8, 10, 13, 16, 21, 25, 27, 28-31)	1
—	93K2130	Repair parts kit (for 17, 19)	1
— ††	93/K	Repair parts kit (for 18, 20)	1

† Parts in gasket set
†† Specify Zenith carburetor number
Δ Parts in repair kit

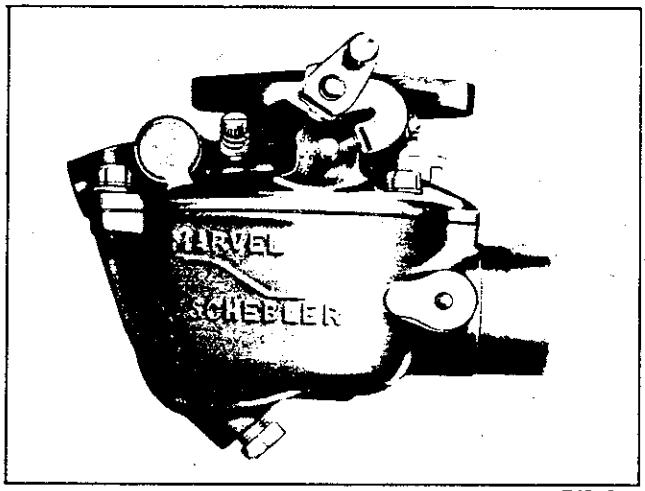


Fig. 1 76941C

FIXED JET CARBURETER

DESCRIPTION

Fig. 1, Marvel-Schebler No. TSX-690 Carburetor. Wisconsin Motor Part Number L-64, for engine Model VH4D.

Fig. 1, Marvel-Schebler No. TSX-954 Carburetor. Wisconsin Motor Part No. L-64-F, for engine Model TJD.

Fig. 2, Marvel-Schebler No. TSX-770 and TSX-676. Wisconsin Motor Part Number L-64A, for engine Model AGND.

PRELIMINARY ADJUSTMENTS

Set ***throttle stop screw*** so that throttle fly is open slightly. Make certain that gasoline supply to carburetor is open. Set throttle control lever to one-third open position. Close choker fly by means of choke control button or choke lever on carburetor. Adjust ***idle needle***, as described in "Low Speed Adjustment" paragraph. Start engine and partially release choke. After the engine has been run sufficiently to bring it up to operating temperature throughout, see that choke is returned to wide open position.

LOW SPEED ADJUSTMENT

The ***idle needle*** on these carburetors should be set between 1 to 1-1/4 turns off of the seat. Care should be used when seating the idle needle so as not to score the point of the needle, by turning too tight.

Set throttle or governor control lever in slow idle position and adjust ***throttle stop screw*** for the correct engine idle speed. (On a new, stiff engine this speed must be slightly higher than required for a thoroughly run-in engine.) Turn ***idle adjusting needle*** in, or clockwise, until engine begins to falter or roll from richness, then turn ***idle adjusting needle*** out, or counter-clockwise, until the engine runs smoothly.

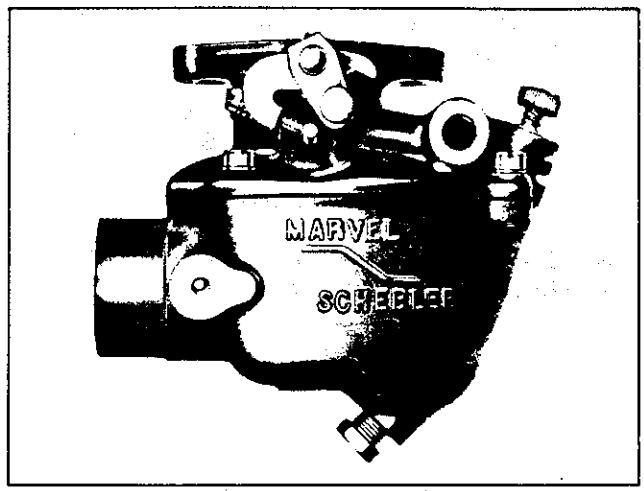


Fig. 2 78863C

ADJUSTABLE JET CARBURETER

Note: It is better that this adjustment be slightly too rich than too lean.

HIGH SPEED ADJUSTMENT

On adjustable jet carburetor, as illustrated in Fig. 2, the ***high speed adjusting needle*** should be set 1-5/8 turns off of the seat, plus or minus a ½ turn.

With the engine running at governed speed under load, turn the ***adjusting needle*** in, or clockwise, a little at a time until the power drops appreciably. Then turn needle out, or counter-clockwise, until the engine picks up power and runs smoothly. This will give an economical part throttle mixture, and, due to the econimizer action, the proper power mixture for full throttle operation. If, in trying out the engine, it is inclined to backfire when the load is picked up, richen the mixture by backing out the adjustment needle a little at a time until good acceleration is obtained.

FLOAT SETTING

The float should be set so that with the throttle body in an inverted position, the float is ¼" from the throttle body to bowl gasket, keeping the edges of the float parallel with this gasket.

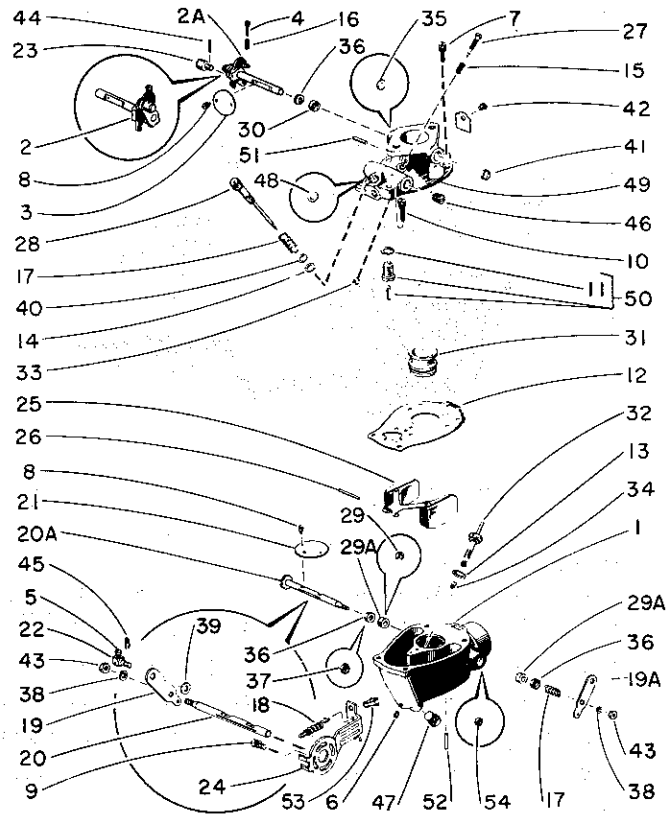
L64 Series (Marvel-Schebler TSX Carburetor)

USE WITH MODELS VH4, TJD, AGND

WISCONSIN PART NO.	MARVEL-SCHEBLER PART NO.
L64	TSX690
L64A (use L63AS1)	TSX770, TSX676
L64F	TSX954 (10-5030)
LZ64-6 (use standard repair kit)	

NOTE: ALL PARTS INTERCHANGEABLE EXCEPT WHERE NOTED BY MODEL NO.

ITEM	PART NO.	DESCRIPTION	QTY
1	46-10-4101	Bowl body assembly (L64)	1
—	46-10-4259	Bowl body assembly (L64A)	1
—	46-10-5058	Bowl body assembly (L64F)	1
2	46-13-1246	Throttle shaft and lever assembly (L64, L64F)	1
2A	46-13-1202	Throttle shaft and lever assembly (L64A)	1
3	46-14-169	Throttle fly (20°)	1
4	46-15-118	Screw, no. 8-32 thread x 5/8" fillister head, throttle stop (L64, L64F)	1
—	46-15-42	Screw, no. 8-32 thread x 3/4" fillister head, throttle stop (L64A)	1
5	46-15-285	Screw, no. 8-32 thread x 5/16" fillister head, choke swivel (L64, L64F)	1
6	46-15-409	Screw, no. 8-32 thread drill plug, for nozzle hole	1
7	46-15A82	Screw, no. 12-24 thread x 5/8" fillister head, throttle body to bowl	3
8	46-15A91	Screw, no. 4-40 thread x 1/4" bind head, "Sems"	4
9	46-15A93	Screw, no. 8-32 thread x 3/8" fillister head, choke bracket (L64, L64F)	1
10	46-15A206	Screw, no. 12-24 thread x 1-1/8" fillister head, throttle body to bowl	1
11	46-16-4	Gasket, float valve seat	1



ITEM	PART NO.	DESCRIPTION	QTY
12	46-16-80	Gasket, throttle body to bowl	1
13	46-16-449	Gasket, main nozzle (NLA) (L64, L64A)	1
—	46-16-28	Gasket, main nozzle (L64F)	1
14	46-16-491	Gasket, high speed needle (L64A)	1
15	46-24-340	Spring, idle needle	1
16	46-24-485	Spring, throttle stop screw (L64)	1
—	46-24-262	Spring, throttle stop screw (L64A) (NLA)	1
—	46-24-285	Spring, throttle stop screw (L64F)	1
—	46-24A332	Spring, float support (L64F) (not illustrated)	1

(continued on page 50)

L64 Series (Marvel-Schebler TSX Carburetor) (Cont.)

USE WITH MODELS VH4, TJD, AGND (see pg. 49)

ITEM	PART NO.	DESCRIPTION	QTY
17	PM214	Spring (L64A)	2
18	46-24A324	Spring, choke return (L64, L64F)	1
19	46-25-661	Choke lever assembly (L64, L64F)	1
19A	46-25-322	Choke lever (L64A)	1
20	46-26-357	Choke shaft (L64, L64F)	1
20A	46-26-847	Choke shaft and head assembly (NLA) (L64A)	1
21	46-27-254	Choke fly (L64)	1
—	46-27-587	Choke fly (L64A)	1
—	46-27-580	Choke fly (L64F)	1
22	46-28-49	Swivel, choke lever (L64, L64F)	1
23	46-28-94	Swivel, throttle lever	1
24	46-29-557	Choke bracket assembly (L64, L64F)	1
25	46-30-600	Float and lever assembly	1
26	46-32-27	Shaft, float lever	1
27	46-43-33	Needle, idle adjusting	1
28	46-43-716	High speed needle assembly (L64A)	1
29	46-44-39	Packing, choke shaft (L64, L64F)	1
29A	46-44-38	Packing, choke shaft (L64A)	1
30	93T48-7	Packing, throttle shaft	1
31	46-46A145	Venturi, 23/32" dia. throat (L64)	1
—	46-46A144	Venturi, 3/4" dia. throat (L64A)	1
—	46-46A133	Venturi, 13/16" dia. throat (L64F)	1
32	46-47-465	Nozzle (L64)	1
—	46-47-257	Nozzle (L64A)	1
—	46-47A133	Nozzle (L64F)	1
33	46-49-101L	Idle jet (L64, L64A)	1
—	46-49-345	Idle jet (L64F)	1
34	46-49-178	Power jet (L64)	1
35	46-55-230	Cup, throttle shaft (L64, L64F)	1
36	46-55-231	Retainer, throttle shaft packing	1
37	46-55-243	Retainer, choke shaft packing (L64, L64F)	1
38	46-78-62	Lock washer, no. 8, for choke shaft (NLA)	1
39	46-78-184	Washer, choke swivel (L64, L64F)	1
40	46-78-299	Plain washer, high speed needle (NLA) (L64A)	1
—	46-78A94	Retainer, "E" ring (L64F)	1
41	46-80-169	Plug, throttle shaft (L64A)	1
42	46-80-171	Plug, idle drilling	1
43	46-81-145	Nut, no. 8-32 thread, choke lever	1
44	46-82-14	Cotter pin, throttle swivel	1
45	46-82-16	Clip, choke swivel (L64, L64F)	1
46	46-99-4	Plug, 1/8" slotted pipe, for fuel inlet	1
47	46-99-7	Plug, 1/8" hex. head pipe, for bowl drain	1
48	46-1791-11	Plug, throttle body, expansion (L64, L64F)	1
49	46-227-1492	Throttle body assembly (L64)	1
—	46-227-1615	Throttle body assembly (L64A)	1
—	46-227-1954	Throttle body assembly (L64F)	1
50	46-233-536	Float valve and seat assembly (L64, L64A)	1
—	46-233-609	Float valve and seat assembly (L64F)	1
—	46-136-110	Bracket, float support (L64F) (not illustrated)	1
51	46-62-167	Pin, throttle stop (L64, L64A)	1
52	46-62-247	Pin, choke fly stop (L64, L64A)	1
53	46-29-155	Clip, choke casing support	1
54	46-80-167	Plug, choke shaft (L64, L64F)	1
—	46-16-740	Gasket set (L64)	1
—	46-16-742	Gasket set (L64A)	1
—	46-16-740	Gasket set (L64F)	1
—	46-286-1228A	Repair kit (L64)	1
—	46-286-1248A	Repair kit (L64A)	1
—	46-286-1580	Repair kit (L64F)	1

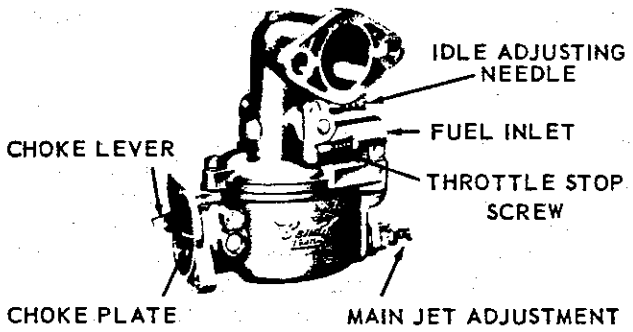


Fig. 1 EXTERNAL VIEW

The Zenith 72 series carburetor, Fig. 1, is of the updraft single venturi, balanced and sealed design. It is furnished with or without adjustable type main metering jet in the 3/4" SAE bore size. The semi-concentric fuel bowl permits operating at extreme angles without causing either flooding or starving.

FUEL SUPPLY SYSTEM

Fuel from the tank is supplied to the fuel bowl through the fuel inlet, fuel valve seat and fuel valve. See Fig. 2. The fuel in the fuel bowl is maintained at a given level by the float through its control of the fuel valve. The fuel valve opening is regulated by the speed and load (fuel demand) of the engine. The fuel bowl is vented internally through a passage that connects into the air supply ahead of the choke plate to maintain the proper air-fuel mixtures even though the air cleaner may become partially restricted.

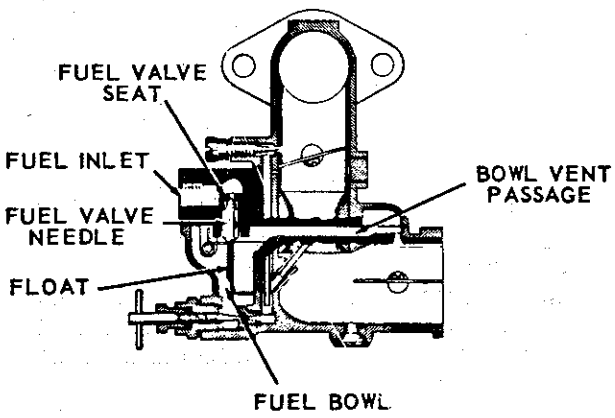


Fig. 2 FUEL SUPPLY SYSTEM

IDLE SYSTEM

The idle system, Fig. 3, consists of an upper and a lower idle discharge hole, an idle air passage, an idle adjusting needle, an idle jet and fuel passage. The fuel for idle is supplied through the main metering jet to a well directly below the main discharge tube. From here the fuel travels up through the idle tube into the idle channel in the bowl cover where it is mixed with air taken in through a passage that originates back of the main venturi. This supply of air and fuel is mixed with additional air entering through the **lower** idle discharge hole and is discharged at the **upper** idle discharge hole. The position of the idle adjusting needle in this passage controls the idle (fuel-air) mixture to the engine. Turning the needle 'IN' results in a leaner mixture. Turning the needle 'OUT' results in a richer mixture. At off idle, the fuel-air mixture is discharged from both **upper** and **lower** idle discharge holes into the air stream.

HIGH SPEED SYSTEM

The high speed system, Fig. 4, controls the air-fuel mixture from part throttle to wide open throttle operation through the use of the main metering jet, the main discharge tube, a venturi and a well vent which insures a uniform mixture ratio under varying engine suction and engine speeds. The main jet controls the delivery of fuel from about one quarter throttle to full throttle opening. To maintain the proper mixture ratio, a small amount of air is admitted through the well vent into the discharge jet at a point below the level of fuel in the metering well. At high speed, the fuel flows from the fuel bowl through the main jet and into the main discharge tube, where it is mixed with air admitted by the well vent; and the air-fuel mixture is then discharged into the air stream of the carburetor. On carburetors with main jet adjusting needle, adjustment of fuel for full power of the engine under load may be made. Turning the adjustable needle 'IN' (clockwise) results in a leaner mixture. Turning the adjustable needle 'OUT' (counter-clockwise) results in a richer mixture.

CHOKE SYSTEM

The choke system, Fig. 5, consists of a choke plate or valve mounted on a shaft; and a choke lever to open and close the choke. Moving the choke lever clockwise closes the choke plate to restrict the air entering the carburetor,

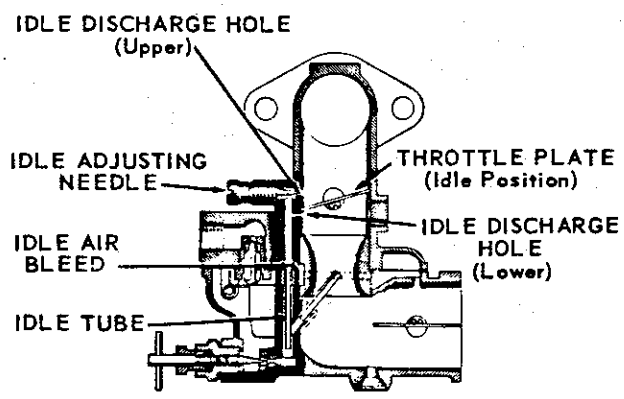


Fig. 3 IDLE SYSTEM

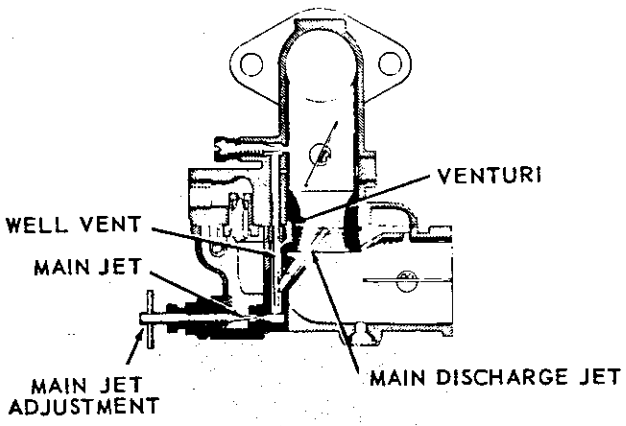


Fig. 4 HIGH SPEED SYSTEM

resulting in a richer mixture. The choke plate should be fully closed when starting a cold engine and then partially opened to prevent stalling from being over-choked. As the engine warms up, the choke plate should be gradually opened. When the engine is fully warmed up, the choke plate should be returned to the wide open position and the throttle returned to the idle position.

SERVICE AND REPAIR PROCEDURE

IDENTIFY CARBURETOR

Check identification numbers stamped within the circle above the throttle shaft boss against the carburetor specifications.

EXPLODED VIEW

The exploded view, Fig. 6, identifies the various component parts and shows their relation to assembly. Use the exploded view numbers to identify and locate parts when performing the disassembly and reassembly operations.

SELECTION OF TOOLS AND REPAIR KITS

The use of the proper repair kit and the proper Zenith tools is essential if the best service and repair procedure is to be performed on the carburetor. The repair parts kit for model 72Y6 carburetor 12810A is K-2113. The following is a list of the Zenith Special Tools and general hand tools that will best perform the service job.

ZENITH SPECIAL TOOLS

C161-83 Main Jet Wrench
C161-85 Fuel Valve Seat Wrench

GENERAL HAND TOOLS

1/2" Open End Wrench
1/4" Blade Screw Driver
6" Depth Gauge
Light Hammer
Prick Punch

DISASSEMBLY

A. DISASSEMBLY OF BOWL COVER

1. Remove the three assembly screws (2) that hold the bowl cover to the bowl.
2. Separate the bowl cover assembly (1) from the bowl assembly.
3. Remove float axle (13) and float (12).
4. Remove bowl cover gasket (16).
5. Remove the fuel valve needle and seat (15) with gasket (14). Remove the fuel valve seat. Use tool C161-85.

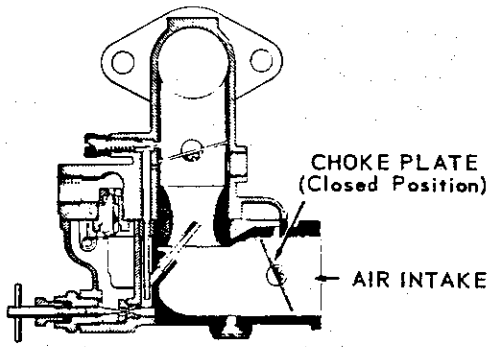


Fig. 5 CHOKE SYSTEM

6. Remove idle adjusting screw needle (3) and spring (4).
7. Remove throttle stop screw (5) and spring (6).
8. Hold bowl cover inverted with mounting flange to operator's right.
   (a) Note that the closed throttle plate slopes down and away from the operator and that there is a mark stamped on the high side of the throttle plate.
   (b) It is important that upon reassembly this same relationship is retained.
9. Hold throttle shaft in the closed position, remove throttle plate screw and lockwasher (11) and throttle plate (10).
10. Remove throttle shaft and lever (9).
11. With screwdriver, or similar tool, remove the throttle shaft dust seal retainer (8) and rubber shaft seal (7).

B. BOWL DISASSEMBLY

1. Remove venturi (17) and idle tube (18) by inverting bowl cover.
2. Do not attempt to remove main discharge jet. This part is pressed in and is not a serviceable item.
3. Remove lower main jet plug if plug is used or remove main jet adjustment (20) and gasket (21). Then remove main jet (22). Use tool C161-83.
4. Hold the bowl (19) in a vertical position with air intake and bottom of bowl next to the operator and note that the closed choke plate slopes down and away from the operator. Observe marking on choke plate. It is important that upon reassembly, this same relationship is retained.
5. Remove choke plate screws and lockwashers (26), choke plate (25), shaft and lever (24).

C. CLEANING AND INSPECTION

1. Clean all metal parts in Bendix Metalclene or Econoclene and rinse well in solvent.
   NOTE: DO NOT clean float in Bendix Metalclene or Econoclene.
2. Inspect all parts for wear or damage, discard all gaskets and any imperfect parts and replace with the specified new parts.
3. Clean all channels and parts with compressed air.
   CAUTION: **DO NOT** use a drill or wire to clean a jet as it will damage the calibrated orifice and affect the flow of fuel.

REASSEMBLY

D. BOWL REASSEMBLY

1. Hold the bowl (19) in a vertical position with air intake up and bottom of bowl next to the operator.
2. Insert choke shaft and lever (24) and position shaft so that the choke lever is toward the bottom of bowl.
3. Install choke plate (25) with letter 'Z' toward bottom of bowl.
4. Start, but do not tighten both choke plate screw and lockwasher (26).
5. Center the choke plate in the air intake bore by lightly tapping the choke plate on the high side. Hold in this position with left index finger and tighten choke plate screws.
6. Install main jet (22), use tool C161-83.
7. Before installing main jet adjustment (20) with gasket (21), turn the adjusting needle several turns to the left (counter-clockwise) to avoid damage to main jet orifice during assembly. If main jet adjustment is not specified, install main jet plug with new fibre washer (21).
8. Hold bowl in operating position and install idle jet (18), tube end down.
9. Install venturi with key at lower edge of venturi in matching slot at choke valve side of bowl.

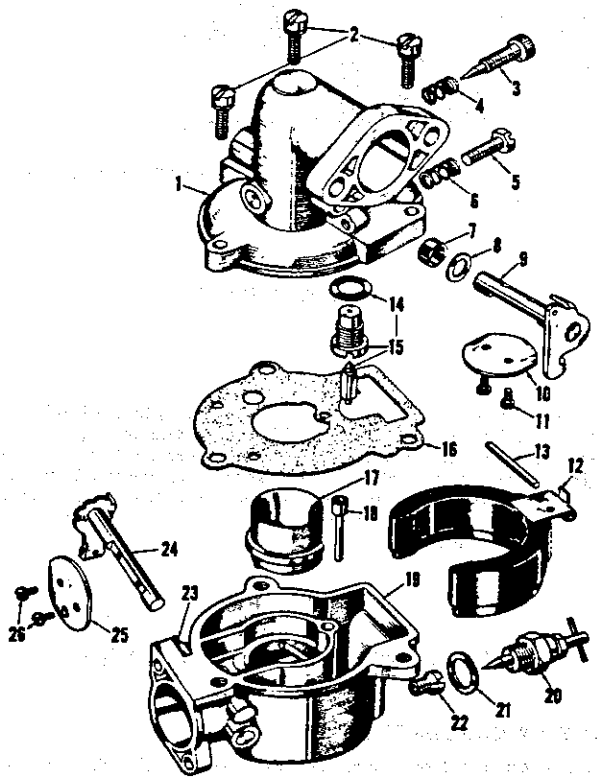


Fig. 6 EXPLODED VIEW

E. REASSEMBLY OF BOWL COVER

1. Assemble new rubber dust seal (7) against throttle shaft bearing, with lips of seal toward the outside.
2. Install and stake the seal retainer washer (8).
3. Assemble throttle shaft and lever (9) with wide open stop lug (narrow lug) on shaft lever in contact with stop on casting when shaft is in the wide open throttle position.
4. Hold bowl cover inverted with mounting flange toward the operator's right.
5. Install throttle plate (10) with mark stamped on throttle plate on high side of plate and toward the operator.
6. Start, but do not tighten both throttle plate screw and lockwasher (11).
7. Gently tap high side of throttle plate to center the plate. Hold in this position with left index finger and tighten throttle plate screws.
8. Install throttle stop screw (5) and spring (6).
9. Install the idle adjusting needle (3) and spring (4).
10. Install the fuel valve seat (15) with fibre washer (14). Use tool C161-85.
11. Assemble fuel valve needle and bowl cover gasket (16).
12. Carefully examine the float assembly (12) for evidence of wear or damage. This type of float is not adjustable and wear in any part of the fuel valve and float hinge assembly will raise the fuel level.
13. Install the float and float axle pin (13). Insert the bowl cover and check the float in the closed position. The float setting will be within limits if the float is parellel to the gasket seating surfaces of the bowl cover, see Fig. 7. Any necessary float correction should be made by replacing worn parts. **DO NOT** attempt to bend the float bracket.
14. Attach bowl cover assembly (1) to bowl by means of the three assembly screws (2).

F. BENCH ADJUSTMENTS

1. Turn throttle stop screw to the right until it just contacts stop lug on throttle lever when throttle is fully closed, then turn screw in two full turns to the right (clockwise).
2. Gently seat idle adjusting screw (3) and then back out screw approximately 1/2 turn.
3. If carburetor is equipped with main jet adjustment, turn adjusting needle in to the right (clockwise) until it is just seated, then back it out approximately 2 full turns.
4. Final adjustments should be made on the engine, with the engine at normal operating temperature and with specified air cleaner in place.

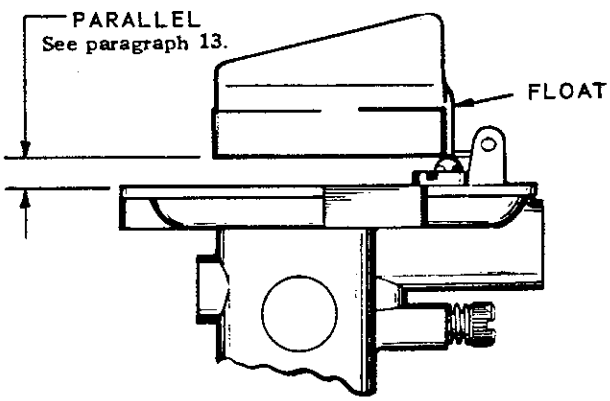
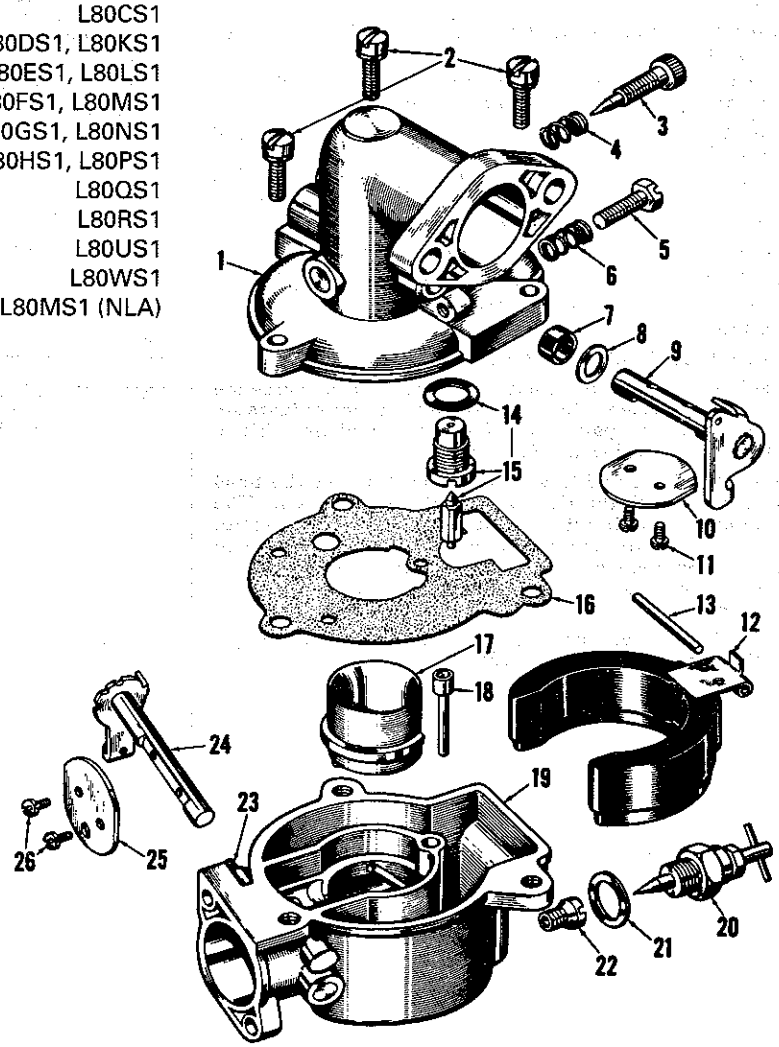


Fig. 7 FLOAT LEVEL

L80 Series (Zenith Model 72Y6 Carburetor)

USE WITH MODELS S7D, HS7D, S8D, HS8D

CARB. REF. NO.	ZENITH ASSEMBLY NO.	WISCONSIN NO.
1	12810	L80S1 (REPLACED BY L80MS1)
2	12882	L80AS1
3	12921	L80BS1, L80JS1
4	12923	L80CS1
5	12931	L80DS1, L80KS1
6	12924	L80ES1, L80LS1
7	12925	L80FS1, L80MS1
8	12926	L80GS1, L80NS1
9	12947	L80HS1, L80PS1
10	13013	L80QS1
11	13045	L80RS1
12	13046	L80US1
13	13078	L80WS1
		L80MS1 (NLA)



L80 Series (Zenith Model 72Y6 Carburetor)

USE WITH MODELS S7D, HS7D, S8D, HS8D (see pg. 55)

ITEM		ZENITH NO.	DESCRIPTION
1	*	— — —	Throttle body (3 req.)
2		93T301S10-10	Screw, bowl to body
3	†	93C46-49	Needle, idle adjustment
4		93C111-155	Spring, idle adjustment
5		93T8S8-12	Screw, throttle stop
6		93C111-10	Spring, throttle stop screw
7	†	93T48-7	Seal, throttle shaft
8	†	93T52-13	Retainer, throttle shaft seal
9		93C29-1388	Lever and shaft assembly, throttle (for 1-3, 5-7, 9, 10)
—		93C29-1414	Lever and shaft assembly, throttle (for 4, 8)
—		93C29-1490	Lever and shaft assembly, throttle (for 11-13)
10		93C21-214	Plate, throttle
11		93T315S5-4	Screw, throttle plate (2 req.)
12		93C85-126	Float and hinge assembly
13	†	93C120-4	Axle, float
14	Δ	93T56-70	Gasket, fibre (fuel valve inlet)
15	†	93C81-50-30	Valve and seat assembly, fuel (for 1, 3-6, 8, 10-12)
—	†	93C81-50-25	Valve and seat assembly, fuel (for 2, 7, 9, 13)
16	†Δ	93C142-76	Gasket, bowl to body
17		93C38-78-15	Venturi (for 1-4, 6-8, 11)
—		93C38-78-18	Venturi (for 5, 9, 10, 12, 13)
18		93C54-35-10	Idle tube assembly
19		93B3-127A	Fuel bowl assembly (for 1, 2, 4-9, 11-13)
—		93B3-127B	Fuel bowl assembly (for 3, 10)
20		93C71-49	Main jet adjustment assembly
21	†Δ	93PH499	Gasket, fibre (main jet adjustment)
22		93C52-36-20	Jet, main (for 1-4, 6-8, 11)
—		93C52-36-24	Jet, main (for 5, 9, 12, 13)
—		93C52-36-30	Jet, main (for 10)
24		93C108-273	Lever and shaft assembly, choke
25		93C102-127A	Plate, choke
26		93T315S5-4	Screw, choke plate (2 req.)
—		93C104-27	Drain valve assembly, fuel bowl (T75-3), "O" rings (for 3)
—		93C111-211	Spring, fuel bowl drain valve (for 3)
—		93CR115-13	Spring retainer, fuel bowl drain valve (for 3)
—	†	93C141-4-17	Flange gasket (Wisconsin Number QC53)

* Not serviced separately
† Parts included in LQ40 repair kit 1, 3-6, 8, 10-12
† Parts included in LQ42 repair kit 2, 7, 9, 13
Δ Parts included in C181-343 gasket kit

DESCRIPTION

The 1408 Series Carburetor is a horizontal "balanced" type with concentric fuel bowl, a single "doughnut"-shaped float, fixed main jet, three-position, spring-loaded choke plate, an idle adjusting needle and throttle stop screw. The venturi is cast integral with the throttle body and the idle tube, main discharge tube and well vent tube are pressed permanently into an elongated boss on the throttle body. This boss serves as the mounting support for the fuel bowl, as well as the main jet. In the "balanced" type carburetor, all air for float chamber ventilation, well ventilation and for idle and main jet operation must enter through the air cleaner. In this design, any restriction in the air cleaner will have a minimum effect upon the fuel-air mixture admitted to the engine.

The **FUEL SYSTEM** controls the level of fuel in the float chamber (fuel bowl) at all times and under all conditions of operation. The Fuel Supply System consists of: the fuel inlet fitting, float chamber, fuel valve (needle and seat), doughnut-shaped float with double hinges, and a single float lever.

The **IDLE SYSTEM** supplies the fuel-air mixture for idle and off-idle (low part – throttle operation). The Idle System consists of: idle tube, idle air bleed, connecting channels, three idle discharge hole, idle adjusting needle and throttle plate.

The **HIGH SPEED (main metering) SYSTEM** supplies the fuel-air mixture for part throttle to full throttle operation. The High Speed System consists of: venturi, discharge nozzle, metering well and tube, well vent, main jet and connecting channels.

The **CHOKE SYSTEM** provides a richer mixture of fuel and air for starting a cold engine. The Choke System consists of: an external choke lever and detent spring, choke shaft and choke plate.

OPERATION

FUEL SUPPLY SYSTEM (Fig. 1)

Fuel under pressure is supplied to the carburetor through the fuel inlet, to the fuel valve (needle and seat), and on to the float chamber. With fuel in the float chamber, the float automatically regulates the opening through the fuel valve to maintain a specified level of fuel in the float chamber even though the fuel flow demands vary with engine speed and load.

IDLE SYSTEM (Fig. 2)

The fuel for idle operation is drawn from the metering well through the idle tube calibration and mixed with air entering through the idle air bleed in the channel leading to the idle discharge holes. At low idle speed, the throttle plate is positioned so that only the #1 idle discharge hole is exposed to engine vacuum. Since the #2 and #3 idle holes are exposed to the air entering the carburetor, air is admitted through idle holes #2 and #3 to be mixed with the fuel-air mixture in idle channel before being discharged through the #1 idle discharge hole into the intake manifold. Opening the throttle plate slightly exposes the #2 idle discharge hole to engine vacuum to feed more fuel-air mixture into the engine. As the throttle is advanced slightly, the #3 idle discharge hole is also exposed to engine vacuum, increasing the fuel-air supply to the engine still further. At this throttle position, any further throttle advance brings the high speed system into operation. The idle adjusting needle regulates the fuel-air mixture flowing through the #1 idle discharge hole. Turning the idle needle valve IN (clockwise) results in a leaner mixture. Turning it OUT (counter-clockwise) provides a richer mixture. **The idle speed is set by adjusting the throttle stop screw and not by the idle adjusting needle.**

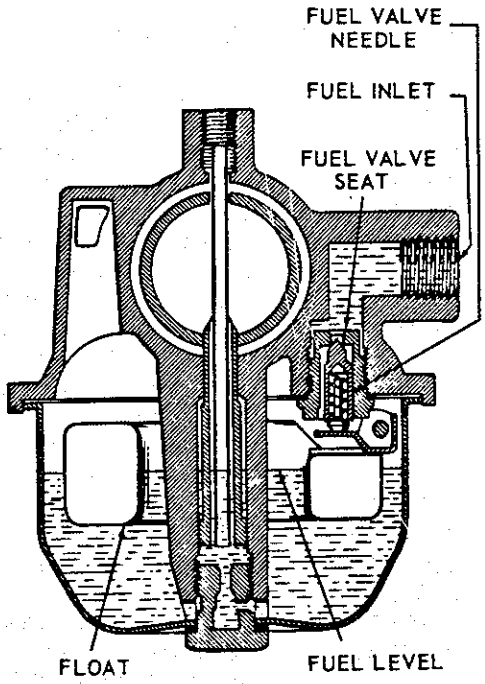


Fig. 1 FUEL SUPPLY SYSTEM

CHOKE SYSTEM (Fig. 2)

Before cranking the engine, the carburetor throttle should be opened just enough to expose all three idle discharge holes to engine vacuum. The choke should be held fully closed during cranking and opened slightly (one notch) shortly after the engine starts. As the engine warms up, the choke should be opened to the third notch, wide-open, and the throttle should be returned to the low idle position.

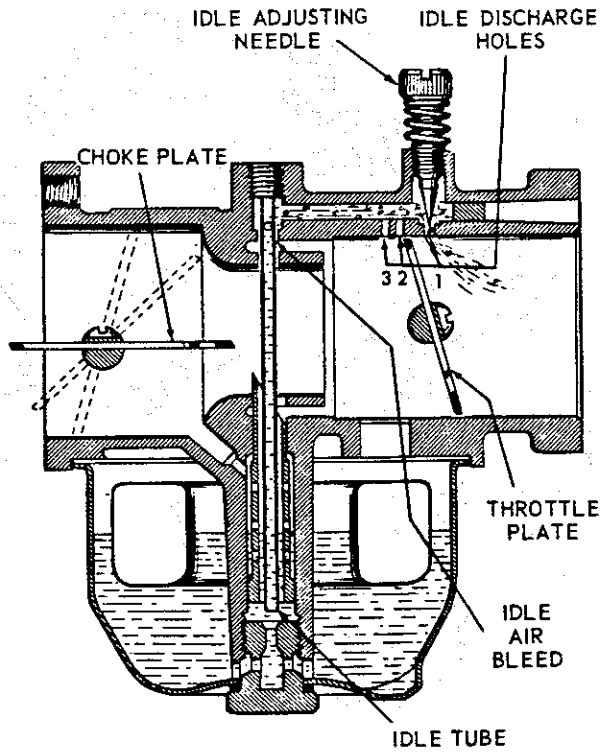


Fig. 2 IDLE AND CHOKE SYSTEMS

HIGH SPEED SYSTEM (Fig. 3)

Fuel for the off-idle to full throttle range of operation is supplied from the fuel bowl through the main metering jet to the discharge nozzle, where it is mixed with air taken in from the air intake in front of the venturi and with air drawn into the discharge nozzle from the chamber surrounding the venturi. This mixture of fuel and air then passes through the discharge nozzle into the air stream at the throat of the venturi. To insure the correct mixture ratio, a small amount of air is added from the well vent or high speed bleed, through the air bleed holes located in the wall of the metering well at various levels. By introducing air into the system below the fuel level in the fuel bowl, the surface tension of the fuel is reduced, enabling the fuel to flow at lower suction. At high suction, the air from the well vent proportionately reduces the flow of fuel to provide a correctly balanced mixture ratio at all engine speeds and loads.

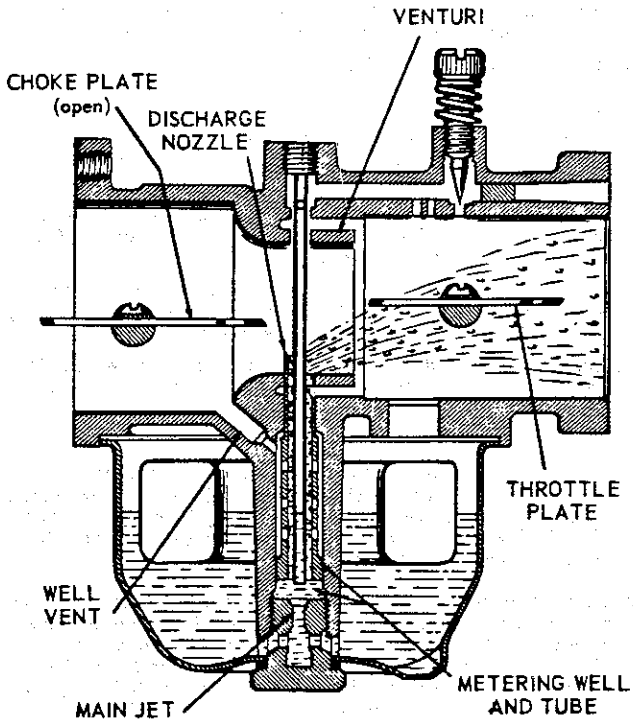


Fig. 3 HIGH SPEED SYSTEM

SERVICE AND REPAIR PROCEDURE

IDENTIFY CARBURETOR

Check the numbers on the metal identification disc pinned to the top of the throttle body or indented in it. The plain number is the Zenith assembly number, the number with the letter "L" pre-fixed to it is the engine manufacturer's part number, for the complete assembly.

EXPLODED VIEW (Fig. 4)

The exploded view identifies the serviceable component parts of the carburetor and shows their relationship to the complete assembly. Use the key numbers on the exploded view to identify and locate parts when performing both the disassembly and assembly operations.

DISASSEMBLY

REMOVAL OF FUEL BOWL

1. With carburetor inverted, loosen main jet (18). Remove main jet assembly, washer (19) and fuel bowl (12).
2. Inspect main jet (18) for wear.

DISASSEMBLY OF THROTTLE BODY

1. Stand throttle body (1) on end and use scribe or heavy wire to press float axle (10) out of float hinges. Remove axle and float (9).
2. Hold hand under fuel inlet and turn throttle body to horizontal position. Catch fuel valve, pin and spring (parts of 20) as they fall from seat.
2. Remove idle adjusting needle (5) and spring (6) by unscrewing them (counterclockwise). Remove throttle stop screw (7) and spring (8) in the same way.
4. Lay throttle body down with fuel bowl side up. Use large screwdriver to remove fuel valve seat (part of 20) and washer (21) from fuel inlet port.
5. Remove bowl to body gasket (11).
6. Close choke plate (16), and use small screwdriver to remove screws (17). Slide choke plate out air intake opening and choke shaft and lever (15) out shaft hole. **Do NOT** remove choke detent spring (24) unless it is damaged and must be replaced.
7. Close throttle plate (13), and use small screwdriver to remove screws (14). Slide throttle plate out manifold opening and throttle shaft and lever (23) out shaft hole. Use small screwdriver to pry seal retainer (3) and seal (2) off shaft hole boss. **Do NOT** remove shaft hole plugs (4) unless they are damaged and must be replaced.

CLEANING

Thoroughly clean all metal parts in Bendix Metalclene or Speedclene and rinse in cleaning solvent. Blow out all passages in throttle body and fuel bowl with reduced air pressure. Be sure all carbon deposits have been removed from throttle bore and idle discharge holes. Reverse the flow of compressed air through all passages to insure the removal of all dirt. **NEVER USE A DRILL OR WIRE TO CLEAN OUT JETS OR IDLE HOLES.**

INSPECTION OF PARTS

1. Float Assembly – Replace if loaded with gasoline, damaged or if float axle bearing is worn excessively. Inspect float lever for wear at point of contact with fuel valve needle. Replace if wear is excessive.
2. Float Axle – Replace if any wear has occurred on the bearing surface.
3. Fuel Valve (Needle & Seat) Assembly – Replace as a complete unit. Wear of any of these parts can seriously affect the operation of the float.
4. Idle Adjusting Needle – Inspect tapered end of the needle to make sure it is smooth and free of grooves. Replace if pitted or grooved.

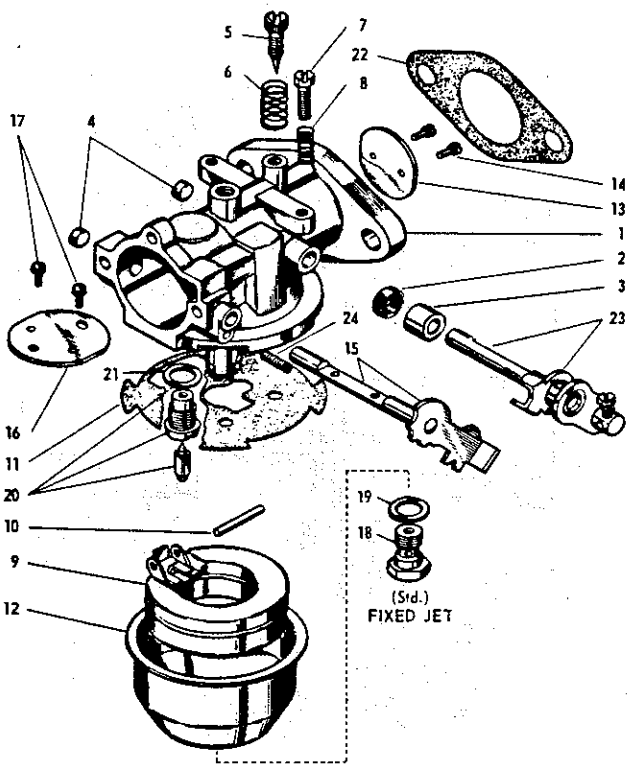


Fig. 4 EXPLODED VIEW

5. Gaskets, Seal and Retainer – Replace all gaskets, throttle shaft seal and retainer each time the carburetor is overhauled.

REASSEMBLY

ASSEMBLY OF THROTTLE BODY

1. Slide throttle shaft and lever (23) into seal retainer (3) and seal (2). Insert shaft into throttle shaft hole at manifold end of throttle body (1). Seat shaft in hole on opposite side of throttle bore and press seal and retainer firmly against shaft hole boss.
2. Rotate throttle lever so flat center section faces out manifold opening. Install throttle plate (13) with screws (14), using small screwdriver.
3. Slide choke shaft and lever (15) into choke shaft hole and seat in hole on opposite side of air intake bore.
4. Rotate choke shaft so flat center section faces out intake opening. Install choke plate (16) with screws (17), using small screwdriver.
5. Lay throttle body down with fuel bowl side up and install bowl to body gasket (11).
6. Install washer (21) and fuel valve seat (part of 20). Use large screwdriver to tighten seat to 100 in-lbs. Insert valve, spring and pin (parts of 20) into seat.
7. Install float (9) and float axle (10) on support brackets of throttle body. Check operation of the float to be sure the hinge and axle do not bind and that the float moves in a perpendicular direction.
8. Install throttle stop screw (7) and spring (8). Adjust screw to open throttle slightly but not far enough to uncover #2 idle discharge hole, see Fig. 2.
9. Install idle adjusting needle (5) and spring (6). Screw needle IN (clockwise) until it seats lightly against the #1 idle discharge hole, then back it out 1½ turns as a preliminary idle adjustment.

FLOAT SETTING

1. With fuel bowl removed, set depth gauge to dimension recommended in illustration, Fig. 5.
2. Hold throttle body assembly in an inverted position and at the same time, support float so that tab or float lever just contacts fuel needle valve without any pressure or weight.
3. Place depth gauge in position as illustrated in Fig. 5.

4. CHANGING FLOAT LEVEL POSITION

a. If float position is not to the dimension shown by depth gauge, remove float and bend tab (or lever) that contacts the needle pin (use long-nose pliers – close to the float body), until correct dimension is obtained. Reassemble float to throttle body and re-check float level position.

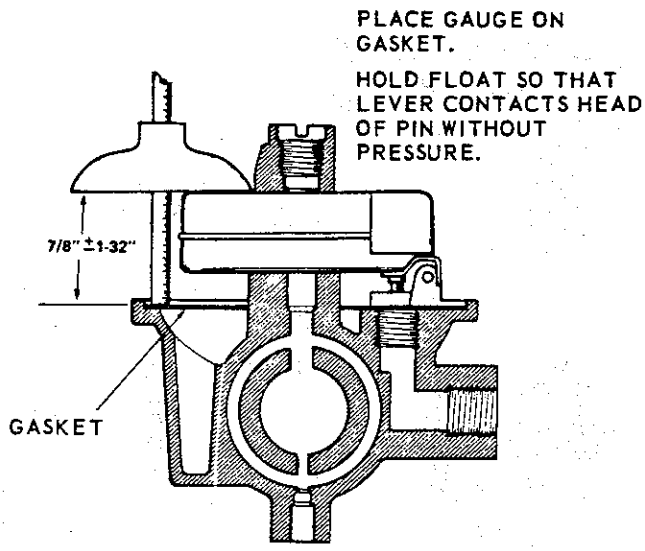


Fig. 5, FLOAT SETTING

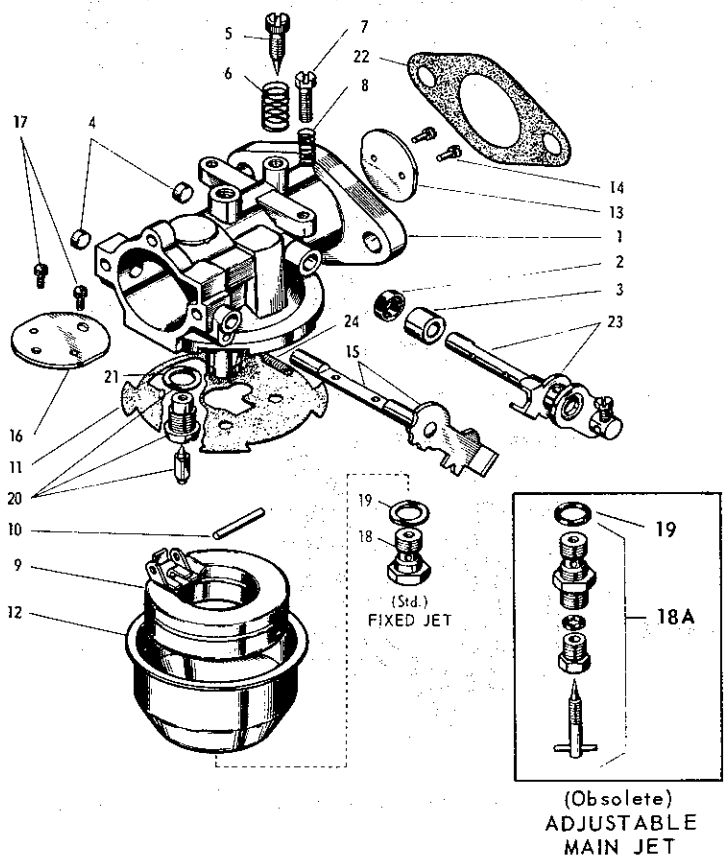
ASSEMBLY OF FUEL BOWL TO THROTTLE BODY

1. Assemble washer (19) on main jet (18) and install fuel bowl (12) on inverted throttle body, using care to avoid damage to the float. Screw main jet with washer into throttle body boss, using 1/2" wrench and tighten to 100 in. lbs.

Assembly is now completed.

L86, L95 Series (Zenith Model 1408 Carburetor)

USE WITH MODELS S10D, S12D, S14D



CARB. REF. NO.	ZENITH ASSEMBLY NO.	WISCONSIN PART NO.
1	13022B	L86AS1
2	13027B	L86BS1
3	13040B	L86CS1
4	13064A	L86DS1 (USE LTA100)
5	13137A	L86ES1
6	13138A	L86FS1
7	13155A	L86GS1
8	13208A	L86HS1 (USE L106AS1)
9	13224A	L86JS1
10	13225A	L86KS1 (NLA)
11	13187A	L86LS1
12	13188A	L86MS1
13	13322A	L86QS1
20	13385A	L95S1
21	13417A	L95AS1
22	13395A	L95BS1
23	13561A	L95CS1
25	13557A	L95ES1
26	13573A	L95FS1
28	13648A	L95HS1

NOTE: Parts are identical for all carburetors, except those identified by carburetor Ref. No.

ITEM	PART NO.	DESCRIPTION	QTY
1	* — — —	Throttle body	1
2	† 93T48-9	Seal, throttle shaft	1
3	† 93C116-33	Retainer, throttle shaft seal	1
4	93CR137-19	Cup plugs, 1/4"	2
5	93C46-49	Needle, idle adjustment	1
6	93C111-155	Spring, idle adjustment	1
7	93T18S8-10	Screw, throttle stop, no. 8-32 thread	1
8	93C111-10	Spring, throttle stop screw	1
9	93C85-129	Float and hinge assembly	1
10	† 93C120-75	Axle, float	1
11	† 93C142-80	Gasket, bowl to body	1
12	93C3-132	Fuel bowl (for all except 5 and 6)	1
—	93C3-132A	Fuel bowl assembly (for 5 and 6) (includes 93C104-27, 93T75-3, 93C111-211, 93CR115-13)	1
13	93C21-219	Plate, throttle	1
14	93T315S5-4	Screw and washer, 1/8"-40 thread	2
15	93C108-278	Lever and shaft assembly, choke (for 1-7, 20, 21, 23, 26)	1

(continued on page 62)

L86, L95 Series (Zenith Model 1408 Carburetor) (Cont.)

USE WITH MODELS S10D, S12D, S14D (see pg. 61)

ITEM	PART NO.	DESCRIPTION	QTY
—	93C108-290	Lever and shaft assembly (NLA), choke (for 8, 22) (not illustrated)	1
—	93C105-286	Choke shaft (for 9-13, 25, 28) (not illustrated)	1
—	93CR106-3A	Choke lever, for 9-13, 25 (not illustrated)	1
—	93T22S8	Lever nut (for 9-13, 25, 28) (not illustrated)	1
—	93T41-10	Choke lever lock washer (for 9-13, 25, 28) (not illustrated)	1
16	93C102-147	Plate, choke (replaces 93C101-89)	1
17	93T315S5-4	Screw, choke plate, 1/8"-40 thread	2
18	— — —	Main jet assembly, fixed	1
—	93C52-39-20	Main jet assembly, fixed (for carburetors 1, 2, 5, 9, 10)	1
—	93C52-39-23	Main jet assembly, fixed (for carburetors 3, 4, 6-8, 11-13)	1
—	93C52-39-29	Main jet assembly, fixed (for carburetors 20-23, 25, 26, 28)	1
18A	— — —	Adjustable main jet assembly, used on carburetors previous to the letter designation following the above listed ZENITH carburetor assembly numbers (obsolete)	1
—	93C71-64-24	Adjustable main jet assembly (for carburetors 1, 2, 5, 9, 10)	1
—	93C71-64-30	Adjustable main jet assembly(for carburetors 3, 4, 6, 7, 8, 11-13)	1
—	93C71-64-34	Adjustable main jet assembly (for carburetors 20-23)	1
19	PH499	Washer, main jet adjustment	1
20	— — —	Fuel valve and seat assembly	
— †	93C81-50-2-25	Fuel valve and seat assembly (for carburetors 1, 3, 8, 9, 11, 21, 22, 26, 28)	1
—	93C81-50-35	Fuel valve and seat assembly (for carburetors 2, 4-7, 10, 12, 13, 20, 23, 25)	1
21	93T56-80	Gasket, fuel valve seat (for 1, 3, 8, 9, 11, 21, 22, 26, 28)	1
—	93T56-70	Gasket, fuel valve seat (for 2, 4-7, 10, 12, 13, 20, 23, 25)	1
22 †	QC12A	Flange gasket	1
23	93C29-1463	Throttle shaft and lever assembly (for all except 7, 13)	1
—	93C29-1565	Throttle shaft and lever assembly (for 7, 13)	1
24	93C111-208	Spring, choke lever detent (for 1-7, 20, 21, 23, 26)	1

* Not serviced separately
† Parts included in repair kit
LQ44 Repair kit for 1, 3, 8, 9, 11, 21, 22, 26, 28
LQ45 Repair kit for 2, 4-7, 10, 12, 13, 20, 23, 25

OPERATION

Fuel from supply tank flows around **float valve seat** (1) through **inlet valve** (2) and into **fuel bowl** (3). As the level in fuel bowl increases, the **float** (4) rises, shutting off fuel supply by forcing **inlet valve** (2) into seat. As fuel is being used, the float lowers and allows additional fuel to enter bowl through the inlet valve.

Fuel from bowl enters the **maximum fuel restriction** (5), then through and past **main adjustment** (6). At full throttle, fuel passes through **main nozzle** (7) where it is mixed with air from **nozzle air bleed** (8) and enters into **venturi** (9). At low idle speeds, fuel flows through the **idle jet** (10), up the **idle channel** (11), around **idle adjustment** (12) and into the **emulsion channel** (13), where it is mixed with air entering the idle air bleed. This air-fuel mixture then enters the throttle bore of carburetor through the outer idle hole. As the throttle is gradually opened, the blade hole starts to feed the throttle bore, but as the full throttle range is reached, the idle system becomes inoperative and the **main nozzle** (7) takes over.

When starting, the **choke valve** is closed and the **throttle valve** (14) is opened, causing an abnormally high suction on both idle and main systems. This provides a conveniently rich mixture for starting.

DESIGN FEATURES

Throttle shaft seal to keep out dust and dirt for longer engine life and better governor operation.

Idle needle designed so that it cannot be damaged if seated too hard.

Bowl drain valve for checking presence of fuel and to drain water out of bowl.

Breather fitting for sealed crankcase breather connection.

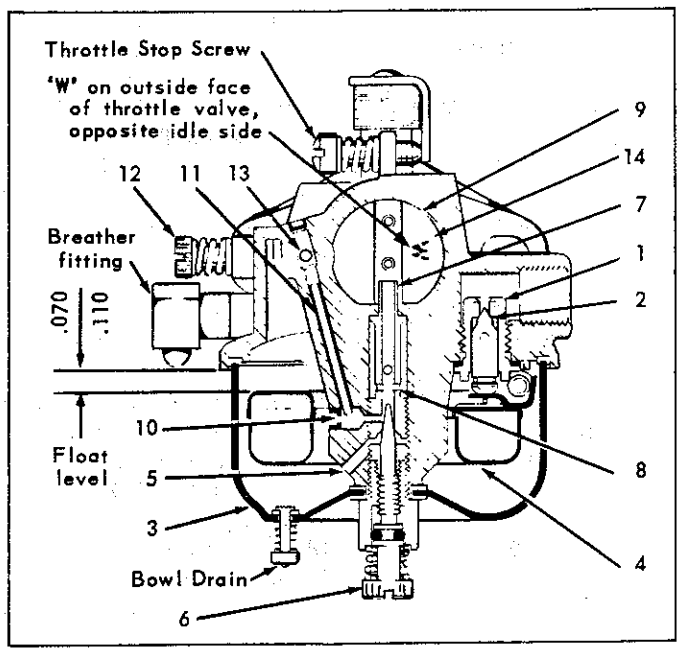
CARBURETOR TROUBLES CAUSES AND REMEDIES

Dirt is the major cause of field service carburetor problems: Service air filter daily — keep carburetor and linkage free of dirt.

FUEL LEAKS FROM CARBURETOR WHEN SHUT-OFF VALVE IS OPEN.

Float level set too high: Remove bowl, invert carburetor and set float parallel to body flange, or to clearance of .070 – .110 inches.

Dirt under inlet valve: Remove inlet valve, clean seat by rinsing in clean fuel and blow off with compressed air.



Bowl vent plugged: Remove bowl and blow clean with compressed air.

Collapsed float, caused by blowing assembled carburetor with compressed air: Replace float.

Carburetor gummed from storage - float stuck: Remove fuel bowl and clean.

ENGINE SMOKES AND RUNS RICH.

Dirty air filter: Clean per instructions.

Improper adjustment: Set idle and power needles 1½ turns open from seat. After engine starts and runs, set for optimum performance.

Bowl retainer gasket leaks: Tighten securely.

Air bleed in carburetor plugged: Remove fuel bowl, idle and power needles. Clean thoroughly with compressed air.

ENGINE RUNS LEAN

Improper adjustment: Set idle and power needles 1½ turns open from seat. After engine starts and runs, set for optimum performance.

Idle holes plugged. Dirt in fuel delivery channels: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

Low fuel level: Set float .070 – .110 inches from body flange.

Fuel tank filter plugged: Remove and clean.

ENGINE STARTS HARD

Improper adjustment: Set idle and power needles 1½ turns open from seat. After engine starts and runs, set for optimum performance.

No fuel in carburetor: Check carburetor drain valve. Clean tank, filter and carburetor.

Choke valve not closing: Check linkage for proper travel.

GOVERNOR SURGE

Governor sticking: Check linkage for binding.

Throttle shaft and valve binding: Remove and replace shaft if worn. Clean carburetor body and reassemble throttle shaft. Push assembly into carburetor body as far as possible. Hold firmly in this position while tightening throttle valve screws. **NOTE:** Mount throttle valve, with letter "W" on valve facing outward and opposite idle side of carburetor. Make certain valve plate does not bind when opening and closing throttle.

DISASSEMBLY

Before disassembling: Clean outside of carburetor from all foreign material.

CAUTION: When cleaning a completely assembled carburetor, do not blow with compressed air, you may collapse the float.

DO NOT soak or boil carburetor or body in chemical solutions. Idle channel is permanently sealed – solution will seep in and cause corrosion.

Disassemble parts in the following sequence; Refer to exploded view.

1. Power Needle Group (23)
2. Fuel Bowl ..... (4)
3. Retainer Gasket ... (14)
4. Fuel Bowl Gasket .. (13)
5. Float Shaft ..... (10)
6. Float and Spring . (9, 22)
7. Float Valve-Spring . (29)
8. Valve Seat Gasket . (12)
9. Idle Needle Assem. . (24)
10. Throttle Stop Screw ..(16)
11. Choke Fly Screws ...(17)
12. Choke Valve .....(8)
13. Choke Shaft .....(7)
14. Throttle Fly Screws ..(17)
15. Throttle Valve .....(6)
16. Throttle Shaft .....(5)
17. Throttle Shaft Seal ...(28)

CAUTION: Do not remove nozzle (Ref. 11) from L-97 carburetor only, unless replacing it with a new service nozzle – idle holes will not line up.

Clean casting and blow all channels with compressed air.

Clean throttle shaft seal in gasoline and dry. Re-oil with No. 30 weight oil or equivalent.

Clean all other parts with gasoline and blow off with compressed air.

Adjustments: Both power and idle needle valves are 1½ turns open from seat. Turn throttle stop screw in until throttle valve is slightly open.

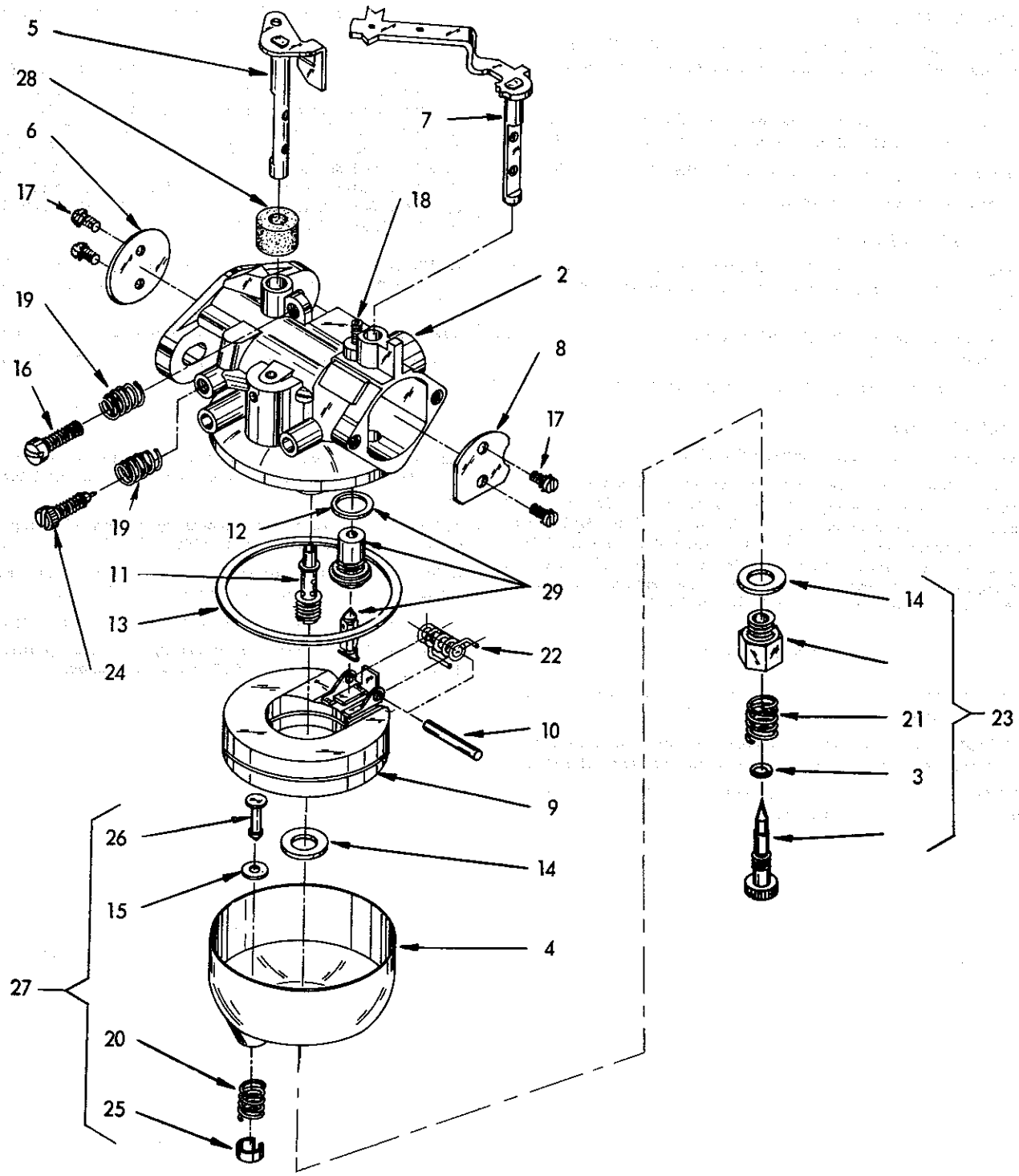
Adjust power mixture for smooth operation with engine warmed up and running at full speed (3600 R.P.M.).

Adjust idle mixture for smooth low running with throttle valve closed and engine running at about 1200 R.P.M.

Adjust throttle stop screw for the desired low idle speed.

Float setting: Carburetor inverted, set float parallel to bowl flange, or to a clearance of .070 – .110 inches.

L97, L97A, L104 Series (Walbro Carburetor Model LME)



L97, L97A, L104 Series (Walbro Carburetor Model LME)

USE WITH MODELS S8D, TRA12D (see pg. 65)

SERVICE PARTS LIST

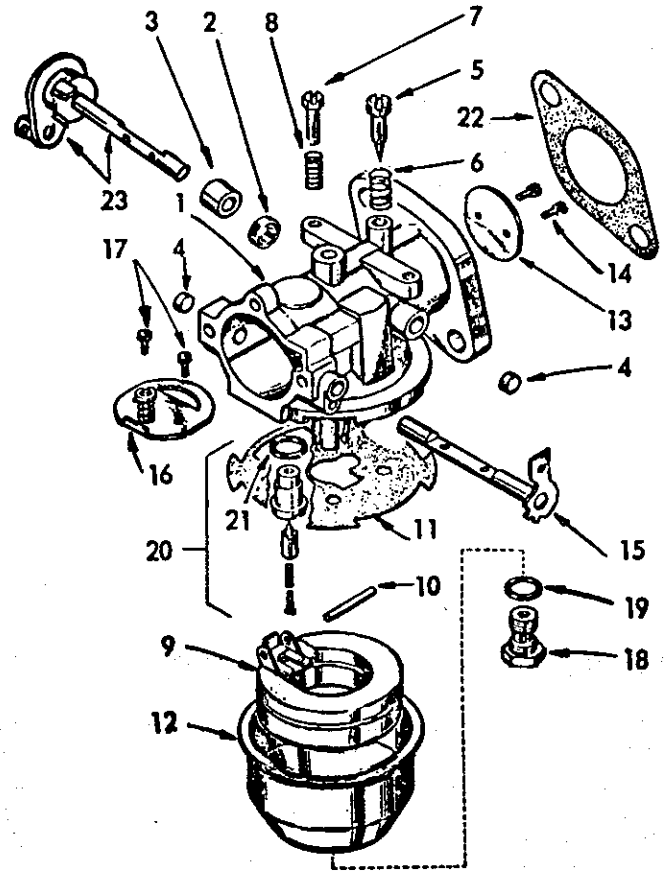
WISCONSIN NO.	WALBRO NO.
L-97	LME-35
L-97A	LME-72
L-104	LME-73

ITEM	PART NO.	DESCRIPTION	QTY
2	* ———	Throttle body	1
3	†† ———	"O" Ring, power needle	1
4	83-20-513	Fuel bowl, with drain assembly	1
5	83-30-639	Throttle shaft, assembly	1
6	83-34-13	Valve, throttle	1
7	83-40-641	Choke shaft, assembly	1
8	83-62-29	Valve, choke	1
9	83-75-502	Float, assembly	1
10	†† ———	Shaft, float	1
11	83-86-82	Nozzle, main (service) (L97)	1
—	83-86-73	Nozzle, for L97A (was 83-86-167)	1
—	83-86-73	Nozzle, for L104 (was 83-86-74)	1
12	† ———	Gasket, valve seat	1
13	† ———	Gasket, fuel bowl	1
14	† ———	Gasket, bowl retainer	2
15	† ———	Gasket, bowl drain	1
16	83-96-18	Screw, throttle stop, 10-32 x 5/8" fill. head	1
17	83-96-517	Screw, throttle and choke valve, no. 4-40 x 1/4" slotted pan head	4
18	83-98-13	Spring, choke stop	1
19	†† ———	Spring, idle needle and stop (1 in kit)	2
20	———	Spring, bowl drain	1
21	†† ———	Spring, power needle	1
22	†† ———	Spring, float support	1
23	†† ———	Needle assembly, power	1
24	†† ———	Needle, idle	1
25	———	Retainer, bowl drain stem	1
26	———	Stem assembly, bowl drain	1
27	83-154-503	Kit, bowl drain	1
28	†† ———	Seal, throttle shaft	1
29	†† ———	Fuel valve and seat assembly	1
—	† ———	Flange gasket (not illustrated)	1
—	†† Q45	Gasket set (also included in repair kit)	1
—	LQ52	Repair kit	1

* Not serviced separately
† Parts included in Q45 gasket set
†† Parts included in LQ52 repair kit

L98S1 Carburetor (Zenith Model 1408 No. 13454) Service Parts List

USE WITH MODEL VH4D WITH FUEL PUMP



ITEM		ZENITH PART NO.	DESCRIPTION
1	*	— — —	Throttle body
2	†	93T48-9	Seal, throttle shaft
3	†	93C116-33	Retainer, throttle shaft seal
4		93CR137-19	Cup plugs, 1/4" (2 req.)
5		93C46-49	Needle, idle adjustment
6		93C111-155	Spring, idle adjustment
7		93T18S8-10	Screw, throttle stop
8		93C111-10	Spring, throttle stop screw
9		93C85-129	Float and hinge assembly
10	†	93C120-75	Axle, float
11	†	93C142-80	Gasket, bowl to body
12		93C3-132	Fuel bowl
13		93C21-219	Plate, throttle
14		93T315S5-4	Screw, throttle plate (2 req.)
15		93C108-303	Lever and shaft assembly, choke
16		93C101-89	Plate, choke (assembly)
17		93T315S5-4	Screw, choke plate (2 req.)
18		93C52-39-24	Main jet
19	†	93T56-23	Washer, main jet
20		93C81-50-2-25	Fuel valve and seat assembly
21		93T56-80	Gasket, fuel valve seat
22	†	93C141-4-6	Flange gasket (Wisconsin no. QC12A)
23		93C29-1745	Throttle shaft and lever assembly
—		93LQ44	Repair kit

* Not serviced separately
† Parts included in repair kit

L106 Series (Walbro Carburetor Model LMH) (NLA)

NOTE: The L106A Adjustable Jet carburetor replaces the L106 Fixed Jet carburetor and is interchangeable for production and service requirements. An Adjustable Jet is included in the LQ54A repair kit so that the Fixed Jet carburetors can be converted when carburetor overhaul becomes necessary.

L106 (LMH16) Fixed Jet (NLA)

OPERATION, Fig. 1

Fuel from supply tank flows around **float valve seat** (1) through **inlet valve** (2) and into **fuel bowl** (3). As the level in fuel bowl increases, the **float** (4 rises, shutting off fuel supply by forcing **inlet valve** (2) into seat. As fuel is being used, the float lowers and allows additional fuel to enter bowl through the inlet valve

Fuel from the bowl enters the **main metering jet** (5), then up to the **main nozzle** (7). At full throttle, fuel passes through **main nozzle** (7) where it is mixed with air from **nozzle air bleed** (8) and enters into **venturi** (9). At low idle speeds, fuel flows through the **idle jet** (10), up the **idle channel** (11), around **idle adjustment** (12) and into the **emulsion channel** (13), where it is mixed with air entering the idle air bleed. This air-fuel mixture then enters the throttle bore of carburetor through the outer idle hole. As the throttle is gradually opened, the inner idle hole starts to feed the throttle bore, and assists the **main nozzle** (7) in taking over the full throttle range.

When starting, the **choke valve** is closed and the **throttle valve** (14) is opened causing an abnormally high suction on both idle and main systems, thus providing a rich mixture for starting.

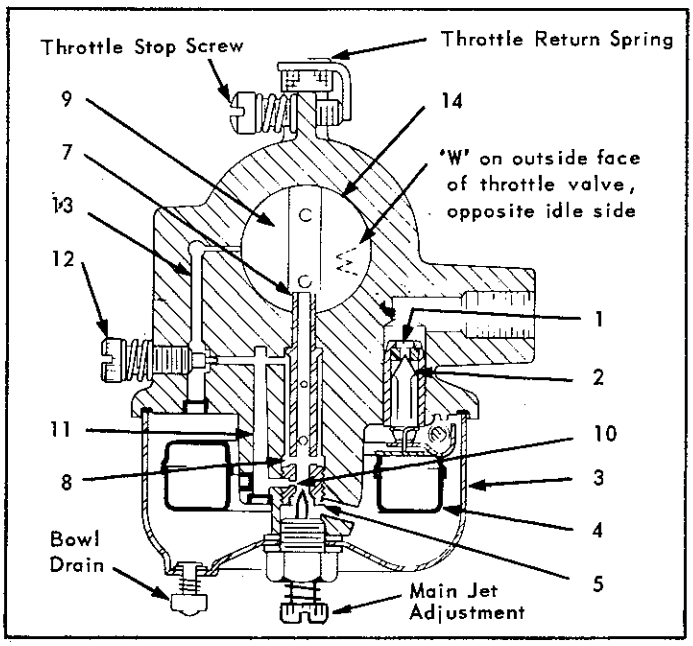


Fig. 1

L106A (LMH18) Adjustable Jet (NLA)

CARBURETOR TROUBLES – CAUSES AND REMEDIES

Dirt is the major cause of field service carburetor problems: Service air filter daily – keep carburetor and linkage free of dirt.

FUEL LEAKS FROM CARBURETOR

Float level set too high: Remove bowl, invert carburetor and set float flush with bowl casting rim. See Fig. 2 and Float Setting Instructions, page 2.

Dirt under inlet valve: Remove inlet valve, clean seat by rinsing in clean fuel and blow off with compressed air.

Bowl vent plugged: Remove bowl and blow clean with compressed air.

Collapsed float, caused by blowing assembled carburetor with compressed air: Replace float.

Carburetor gummed from storage - float stuck: Remove fuel bowl and clean.

ENGINE SMOKES AND RUNS RICH

Dirty air filter: Clean per instructions.

Improper adjustment: Set Idle Needle 1 turn open from seat, Main Jet Adjustment 1-1/4 turns open. Refer to Adjustment Instruction, page 2.

Bowl retainer gasket leaks: Tighten securely, or replace.

Air bleed in carburetor plugged: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

ENGINE RUNS LEAN

Improper adjustment: Set Idle Needle 1 turn open from seat, Main Jet Adjustment 1-1/4 turns open. Refer to Adjustment Instructions, page 2.

Idle holes plugged. Dirt in fuel delivery channels: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

Low fuel level: Set float flush with bowl casting rim. See Fig. 2 and Float Setting Instructions page 2.

Fuel tank filter plugged: Remove and clean.

ENGINE STARTS HARD

Improper adjustment: Set Idle Needle 1 turn open from seat, Main Jet Adjustment 1-1/4 turns open. Refer to Adjustment Instructions page 2.

No fuel in carburetor: Check carburetor drain valve. Clean tank, filter and carburetor.

Choke valve not closing: Check linkage for proper travel.

GOVERNOR SURGE

Governor sticking: Check linkage for binding.

Throttle shaft and valve binding: Remove and replace shaft if worn. Clean carburetor body and reassemble throttle shaft. Push assembly into carburetor body as far as possible.

DISASSEMBLY

Before disassembling: Clean outside of carburetor from all foreign material.

CAUTION: When cleaning a completely assembled carburetor **do not** blow with compressed air, you may collapse the float.

DO NOT soak or boil carburetor or body in chemical solutions. Idle channel is permanently sealed – solution will seep in and cause corrosion.

Disassemble parts in the following sequence; Refer to exploded view, page 2.

1. Adjustable Jet screw ..(19)
2. Retainer gasket .....(13)
3. Fuel bowl .....(4)
4. Retainer gasket .....(14)
5. Fuel bowl gasket .....(12)
6. Float shaft .....(10)
7. Float and spring .... (9, 24)
8. Fuel valve-Spring .....(29)
9. Idle needle assembly ..(25)
10. Throttle stop screw .....(17)
11. Choke valve screws ....(18)
12. Choke valve .....(8)
13. Choke shaft .....(7)
14. Throttle valve screws ..(18)
15. Throttle valve .....(6)
16. Throttle shaft .....(5)
17. Throttle shaft seal .....(28)
18. Throttle return spring ..(23)

CAUTION: Do not remove nozzle (Ref. 11) from carburetor, unless replacing it with a new **service nozzle** - idle holes will not line up. Tighten 30 to 40 inch pounds torque.

Viton seat for fuel valve can be replaced if necessary. Pull out by means of a small hook on the end of a wire paper clip.

Clean throttle shaft seal in gasoline and dry. Re-oil with No. 30 weight oil or equivalent.

REASSEMBLY

Wash all other parts with carburetor cleaning solvent and blow off with compressed air.

Install choke shaft and valve. Mount valve with **part number** toward the outside with the valve in a closed position.

Mount throttle valve, with letter **"W"** on valve facing outward and opposite idle side of carburetor. Make certain valve plate does not bind when opening and closing throttle. Be sure that return spring tension holds throttle valve closed.

Viton fuel valve seat; press in place with groove end toward seat hole.

FLOAT SETTING

Mount all other parts in reverse order of disassembly. Before mounting fuel bowl, check **float setting** per illustration, Fig. 2. Bend adjustment tab to raise or lower fuel level. Mount float support spring as shown.

ADJUSTMENTS

Set Idle Needle **1 turn open** from seat, and Main Jet Adjustment **1-1/4 turns open.**

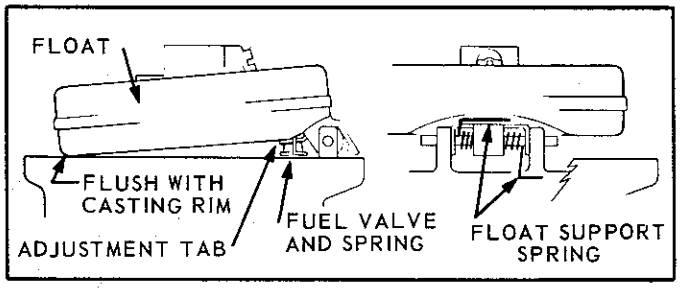


Fig. 2, **FLOAT SETTING**

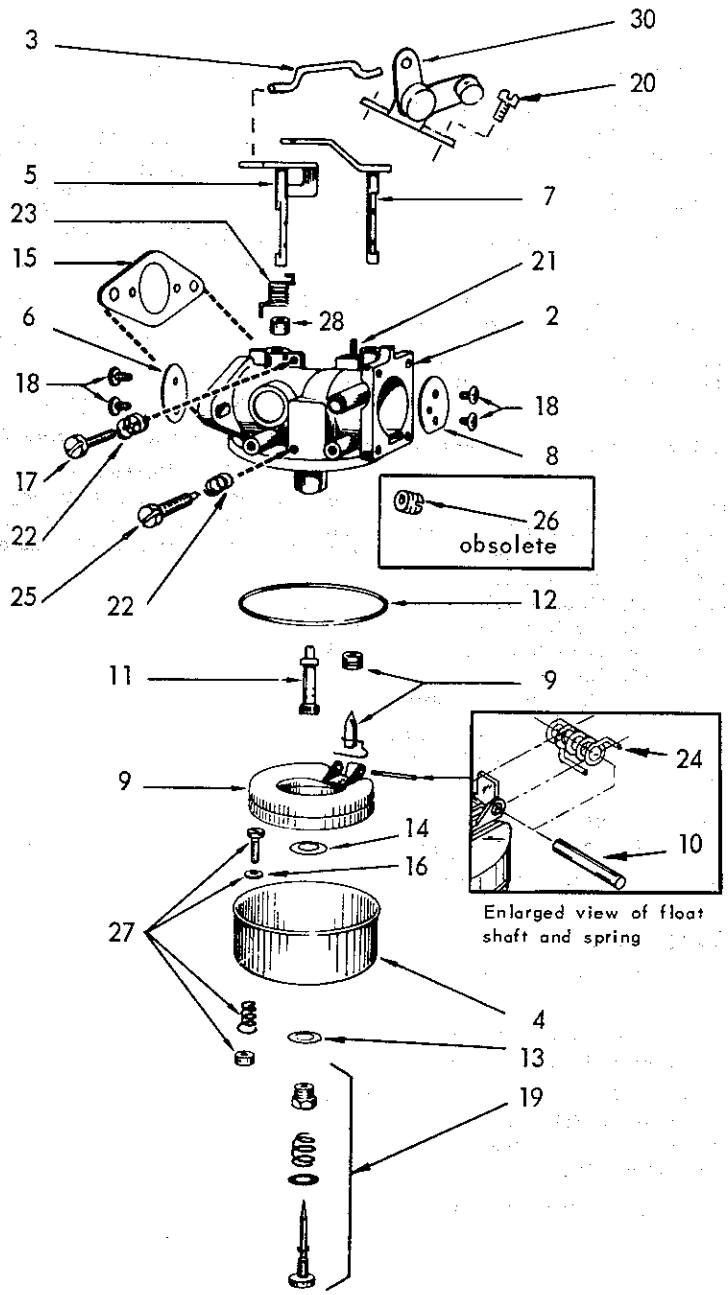
Turn throttle stop screw in until throttle valve is slightly open.

Adjust idle mixture for smooth low running with throttle valve closed and engine running at about 1200 R.P.M.

Adjust throttle stop screw for the desired low idle speed.

Main Jet Adjustment: Turn adjustment until engine runs smooth at operating speed. If engine hesitates when speeding up from idle to high speed, open adjustment 1/8 to 1/4 turn at a time until hesitation is eliminated.

L106 Series (Walbro Carburetor Model LMH) (NLA)



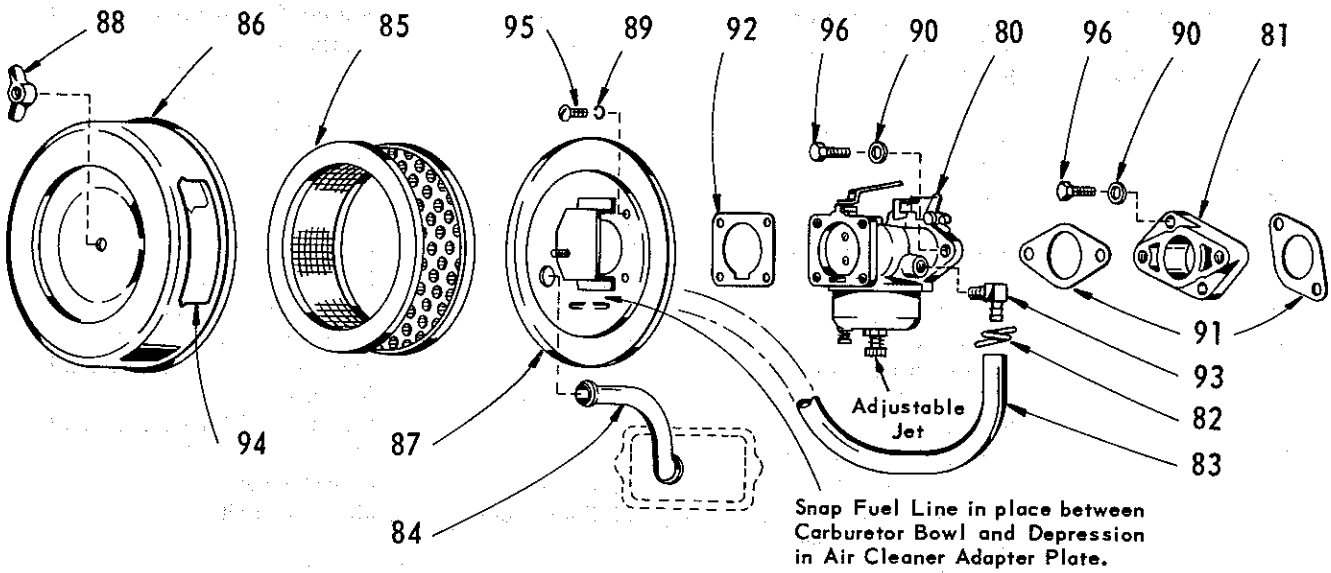
L106 Series (Walbro Carburetor Model LMH) (NLA)

USE WITH MODELS S12D, S14D (see pg. 70)

ITEM	PART NO.	DESCRIPTION	QTY
2	———	Throttle body, not serviced	1
3	83-19-19	Link, throttle	1
4	83-20-513	Fuel bowl with drain assembly	1
5	83-30-796	Throttle shaft assembly (includes 23, 28)	1
6	83-34-18	Valve, throttle	1
7	83-40-693	Choke shaft assembly	1
8	83-62-70	Valve, choke	1
9	83-75-502	Float assembly	1
10 ††	———	Shaft, float	1
11	83-86-174	Nozzle, main (service)	1
12 †	———	Gasket, fuel bowl	1
13 †	———	Gasket, bowl retainer, outer (red)	1
14 †	———	Gasket, bowl retainer, inner (black)	1
15 †	———	Gasket, flange	1
16 †	———	Gasket, bowl drain	1
17	83-96-18	Screw, throttle stop, 10-32 thread x 5/8" fill. head	1
18	83-96-263	Screw, throttle and choke valve, no. 6-32 thread x 3/16" pan head	4
19 ††	———	Adjustable main jet (L106A)	1
20	83-96-549	Screw, swivel bracket retainer, no. 4-40 thread x 5/16" pan head	2
21	83-98-13	Spring, choke stop	1
22 ††	———	Spring, idle needle, and stop (1 in kit)	2
23	83-98-335	Spring, throttle return (NLA)	1
24 ††	———	Spring, float support	1
25 ††	———	Needle, idle	1
26	———	Jet, main fuel (L106) (use 19) (included in LQ54A repair kit) (obsolete)	1
27	83-154-503	Kit, bowl drain	1
28	83-156-18	Seal, throttle shaft	1
29 ††	———	Fuel valve and viton seat	1
30	83-167-514	Bracket assembly with swivel	1
— ††	Q46	Gasket set (also included in repair kit)	1
—	LQ54A	Repair kit (replaces LQ54)	1

† Parts included in Q46 gasket set
†† Parts included in LQ54A repair kit

LFA100 Walbro Carburetor Assembly And LAA 138 Air Cleaner Assembly



LFA100 Walbro Carburetor Assembly And LAA 138 Air Cleaner Assembly

USE WITH MODELS S12D, S14D BEGINNING WITH ENGINE SERIAL NO. 5675598 (see pg. 72)

ITEM	PART NO.	DESCRIPTION	QTY.	NET WT. LB.	OZ.
—	LAA138	Air cleaner assembly (includes 84-89, 92, 94, 95)	1		
—	LFA100	Carburetor assembly (includes 80, 81, 90, 91, 93, 96)	1		
80	L106AS1	Carburetor, adjustable jet type WALBRO no. LMH18 L106S1 (LMH16) fixed jet carburetor (replaced by L106AS1) (interchangeable)	1	1	
—	LQ54A	Repair kit (for L106AS1, L106S1) (replaces LQ54) interchangeable)	1		6
—	Q46	Gasket set (for L106AS1, L106S1)	1		1
		Refer to Walbro carburetor bulletin in back section of manual for service instructions – parts list.			
		NOTE: For S12D, S14D engines previous to serial no. 5675598 use LTA100 carburetor and air cleaner conversion kit for replacement of L86C, L86D, L95, L95A Zenith carburetors.			
81	LF146	Adapter, carburetor	1		2
82	LK30	Hose clamp, fuel line	2		1
83	LL178-19	Fuel line	1		3
84	LL201	Breather tube	1		3
85	LO194A	Element, air cleaner	1		6
86	LO194F	Housing, air cleaner	1		12
87	LO194H	Adapter plate, air cleaner	1		6
88	PD147	Wing nut, air cleaner mounting	1		1
89	PE14	Lock washer, no. 10 spring lock (for air cleaner adapter plate)	4		1
90	PH14D	Washer, 5/16" plain steel (for carburetor and adapter mounting)	4		1
91	QC12A	Gasket, carburetor and adapter mounting	2		1
92	QD860	Gasket, air cleaner adapter plate	1		1
93	RF1439	Elbow, in carburetor for fuel line	1		1
94	SD308	Decal, air cleaner instruction	1		1
95	XA7	Screw, 10-32 thread x 3/8" long, round head (for air cleaner mounting)	4		1
96	XD16B	Screw, 5/16-18 thread x 7/8" hex head grade 5 (for carburetor and adapter mounting	4		1
		NOTE: Two other parts affected by this change are in the basic engine Parts List.			
Ref. No. 178		Throttle rod (PI228)			
Ref. No. 210		Flywheel air shroud (SE337, SE337A)			

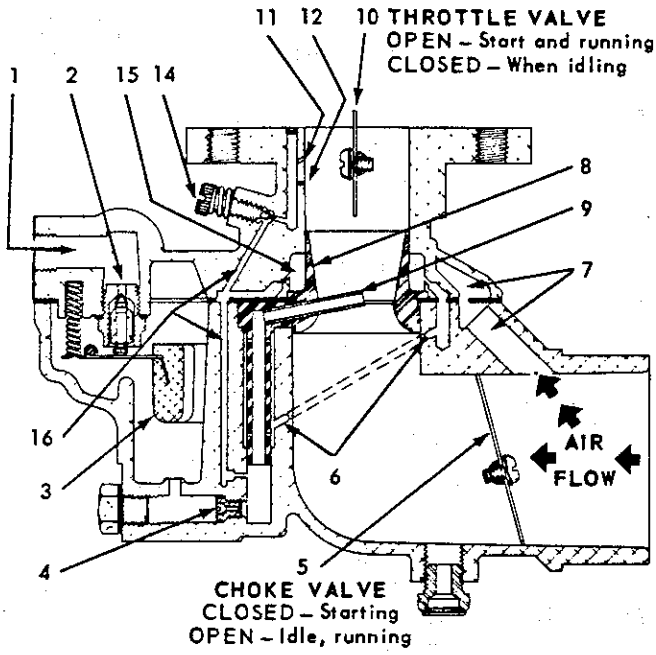


Fig. 1

ENGINE SMOKES AND RUNS RICH

Dirty air filter: Clean per instructions.

Improper adjustment: Set Idle Needle 1 ±1/8 turns open from seat. Refer to Adjustment Instruction, page 2.

Bowl to body gasket leaks: Tighten securely, or replace.

Air vent in carburetor plugged: Remove fuel bowl and idle needle. Clean air and idle channels thoroughly with compressed air.

ENGINE RUNS LEAN

Improper adjustment: Set Idle Needle 1 ±1/8 turns open from seat. Refer to Adjustment Instructions, page 2.

Idle holes plugged. Dirt in fuel delivery channels: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

Low fuel level: See Fig. 2 and Float Setting Instructions, page 2.

Fuel filter plugged: Remove and clean.

ENGINE STARTS HARD

Improper adjustment: Set Idle Needle 1 ±1/8 turns open from seat. Refer to Adjustment Instructions, page 2.

No fuel in carburetor: Check carburetor drain plug. Clean tank, filter and carburetor. Check fuel lines for obstructions, and test fuel pump.

Choke valve not closing: Check linkage for proper travel.

GOVERNOR SURGE

Governor sticking: Check linkage for binding.

Throttle shaft and valve binding: Remove and replace shaft if worn. Clean carburetor body and reassemble throttle shaft.

OPERATION, Fig. 1

Fuel is gravity fed or pumped through the gas line from the tank to **Inlet fitting** (1), through inlet needle **Valve seat** (2) and into the fuel bowl. As the level in fuel bowl increases, the **Float** (3) rises, shutting off the fuel supply by forcing needle valve into **Valve seat** (2). As fuel is being consumed, the float drops and allows additional fuel to enter the bowl through the valve seat. Internal **Air vent** (7) provides clean air to balance atmospheric pressure in fuel bowl.

WHEN STARTING; the **Choke valve** (5) is closed and the **Throttle valve** (10) is wide open causing an abnormally high suction. This high vacuum demand draws fuel and air from both idle and main systems for ease in cold starts.

Fuel from the bowl enters the **Main metering jet** (4), then up through **Main nozzle** (9) where it combines with air from **Nozzle well air-vent** (6). This mixture passes thru **Venturi** (8) and blends with fuel/air mixture from **Air vent** (15) and **Idle holes** (11) and (12) to provide a highly volatile rich mixture for starting.

AT IDLE SPEEDS; the **Throttle valve** (10) remains **closed,** exposing only the **Idle hole** (11) from which a fuel/air mixture is drawn. Air volume is closed off up to the idle hole by the throttle valve as the **Choke valve** (5) is now **open.** The **Idle adjusting needle** (14) regulates the amount of fuel/air mixture to the **Idle hole** (11), from **Idle air vent** (15) and **Idle fuel channel** (16), to meet various engine operating conditions.

AT HIGH SPEED, or full throttle operation; gradual acceleration is obtained when the **Throttle valve** (10) is partially opened allowing additional fuel/air mixture from the **Idle hole** (11) and **Part throttle hole** (12) to enter the engine combustion chamber, causing the engine to run faster. As the throttle valve opening is increased and the engine demands a greater fuel/air volume, the **Nozzle** (9) begins to satisfy this requirement beyond the idle hole and part throttle hole capacities.

After the acceleration assist from the idle system; at full throttle the complete idle circuit is reversed, as air only, in place of the fuel/air mixture, is drawn through the **Idle holes** (11), (12), and **Channel** (16), to **Nozzle** (9), where it is blended with fuel drawn from float chamber thru **Jet** (4).

CARBURETOR TROUBLES CAUSES AND REMEDIES

Dirt is the major cause of field service carburetor problems. An adequate Fuel Filter must be used between the tank and carburetor, and should be serviced frequently. Service Air Filter daily – Keep carburetor and linkage free of dirt.

FUEL LEAKS FROM CARBURETOR

Float level set too high: Remove bowl, invert carburetor and set float. See Fig. 2 and Float Setting Instructions, page 2.

Dirt under inlet needle valve: Remove inlet valve, clean seat by rinsing in mild solvent or clean fuel, and blow off with compressed air.

Bowl vent plugged: Remove bowl and blow clean with compressed air.

Collapsed float, caused by blowing assembled carburetor with compressed air: Replace float.

Carburetor gummed from storage - float stuck: Remove fuel bowl and clean.

DISASSEMBLY

Before disassembling: Clean outside of carburetor from all foreign material.

IMPORTANT: When cleaning a completely assembled carburetor **do not** blow with compressed air, you may collapse the float.

For a complete disassembly, follow the sequence of part reference numbers in the carburetor exploded view, Fig. 3. **Nozzle** Ref. 9, Fig. 1 **is not removable.**

IMPORTANT: Before removing Throttle and Choke levers, note their position and location. Optional mounting is available and may differ from exploded view illustration.

CLEANING

Wash all parts in a mild solvent or fuel. Blow air through orifices (holes) and channels in throttle body and fuel bowl. **Do not** probe with any sharp tools which might damage small metering holes.

REASSEMBLY

Replace all worn or damaged parts – use all new gaskets. **Note;** Body Gasket (18) is put on before float is assembled, and round opening in gasket fits into groove of Venturi (11).

Be sure that **Notch** in Venturi is **facing toward float needle valve** – this is clearance for **Main nozzle** in throttle body.

Assemble Throttle Valve (8) and Choke Valve (25) with part numbers **facing to the outside,** when valves are in the closed position.

IMPORTANT: Be careful in tightening brass screws and fittings, so as not to strip threads and screw driver slots.

Tighten firmly but not excessively.

Valve Seat (16) – 40 to 50 inch pounds torque
Main Jet (22) – 50 to 60 inch pounds torque

FLOAT SETTING, Fig. 2

With fuel bowl removed and float assembly in place, turn throttle body upside down so that float assembly is on top. Check float height with a depth gauge. Setting should be **1.010 inch ± .020** above bowl gasket. If necessary, bend float arm (at float), to obtain correct height.

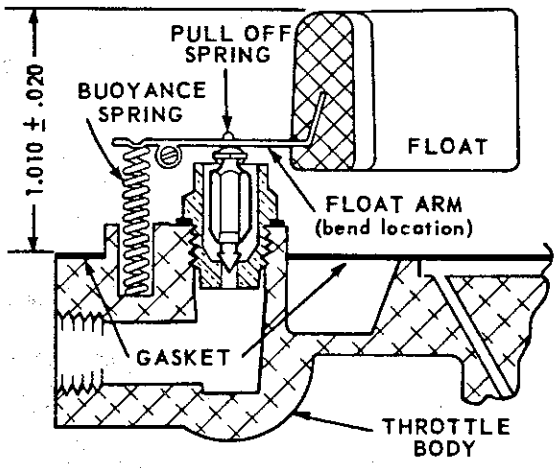


Fig. 2 FLOAT SETTING

ADJUSTMENTS, Fig. 1

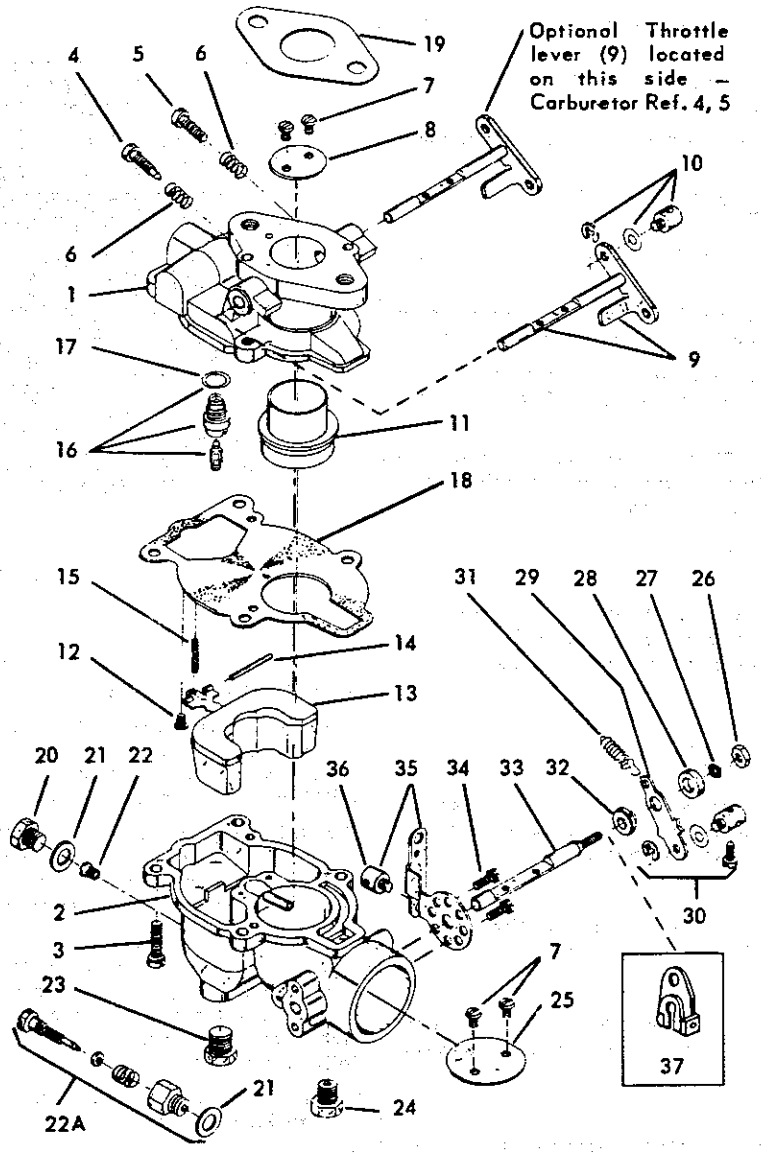
Turn **Idle speed screw** (5), Fig. 3, in until throttle valve is slightly open. With engine warmed up and running, turn adjusting screw in or out as required to obtain desired low idle speed (1000 to 1200 r.p.m.).

The **Idle adjusting needle** (14) should be seated lightly (clockwise), then backed out **1 ± 1/8 turns** as a preliminary setting. With engine warmed up and running at about 1200 R.P.M., fine tune idle mixture for smooth steady running.

The **Main Metering Jet** (4), for high speed operation is **fixed** (not adjustable), as standard equipment, and used in the majority of engine applications. However, an **Adjustable Jet** carburetor is available, and the **High Speed Adjustment** is made by means of the Needle Assembly, Item 22A of Fig. 3, in the following manner:

1. As a preliminary setting, turn needle out from its seat about 1 to 1¼ **turns** open.
2. With engine warmed up and running at idle speed, crack throttle open suddenly.
3. If engine hesitates before speeding up, open **Main Jet Needle** 1/8 to 1/4 turn. Repeat until engine goes from idle to high speed without hesitation.

L108, L111 Series (Walbro Carburetor Model LUB)



L108, L111 Series (Walbro Carburetor Model LUB)

USE WITH MODELS VH4D, TJD (see pg. 76)

FOR ENGINE MODEL VH4D			FOR ENGINE MODEL TJD		
CARB. REF. NO.	WALBRO ASSEMBLY NO.	WISCONSIN PART NO.	CARB. REF. NO.	WALBRO ASSEMBLY NO.	WISCONSIN PART NO.
1	LUB1	L108	15	LUB11	L111
2	LUB7	L108-1	16	LUB15	L111-1
3	LUB8	L108-2, L108-3	17	LUB16	L111-2
4	LUB9	L108A	18	LUB17	L111-3, L111-4
5	LUB10	L108B			

NOTE: Parts are identical for all carburetors, except those identified by carburetor Ref. No.

ITEM	PART NO.	DESCRIPTION	QTY
1 *	———	Throttle body	1
2	83-20-566	Fuel bowl assembly (for 1-5) (NLA)	1
—	83-20-573	Fuel bowl assembly (for 15-18)	1
3	83-96-570	Screw-washer, fuel bowl, no. 10-32 thread x 3/4" Philips head with lock washer (NLA)	4
4 ††	———	Needle, idle adjusting	1
5	83-96-262	Screw, idle speed adjustment, no. 10-32 thread x 3/4" fillister head	1
6	83-98-14	Spring, idle and throttle stop	2
7	83-96-185	Screw-washer, choke and throttle valves, no. 6-40 thread x 1/4" pan head	4
8	83-34-113	Valve, throttle	1
9	83-30-827	Throttle shaft assembly (NLA) (for all except 4, 5)	1
—	83-30-839	Throttle shaft assembly (for 4, 5) (NLA)	1
10	83-52-515	Swivel assembly, throttle lever	1
11	83-46-28	Venturi (50) (for 1-5)	1
—	83-46-29	Venturi (52) (for 15-18) (NLA)	1
12 ††	———	Screw, float lever pin, no. 6-32 thread x 3/16" pan head	1
13	83-75-545	Float assembly	1
14 ††	———	Pin, float assembly	1
15 ††	———	Spring, float buoyancy	1
16 ††	———	Fuel valve and seat assembly	1
17 †	———	Gasket, valve seat	1
18 †	———	Gasket, bowl to body	1
19 †	———	Gasket, mounting flange	1
20	83-96-155	Screw, main jet plug, 5/16"-24 thread x 1/2" hex head	1
21 †	———	Gasket, main jet plug screw	1
22	83-114-0520	Main jet (.052) (for 15-18)	1
—	83-114-0560	Main jet (.056) (for 1-5)	1
22A	———	Needle assembly, main jet adjustment	1
23	83-88-109	Plug, bowl drain, 1/8"-27 pipe	1
24	83-125-515	Drip plug assembly (for all except 17)	1
25	83-62-73	Valve, choke	1
26	83-134-51	Nut, choke shaft, no. 6-32 thread hex. (for all except 3, 18)	1
27	83-136-162	Lock washer, shaft nut, no. 6 (for all except 3, 18)	1
28	83-108-89	Retainer, choke lever (for all except 3, 18)	1
29	83-42-520	Choke lever assembly (for all except 3, 14, 18) (NLA)	1
—	83-42-522	Choke lever assembly (for 4) (NLA)	1
30	83-52-501	Swivel assembly, choke lever (for all except 3, 18)	1

(continued on page 78)

L108, L111 Series (Walbro Carburetor Model LUB) (Cont.)

USE WITH MODELS VH4D, TJD (see pg. 76)

ITEM	PART NO.	DESCRIPTION	QTY
31	93C112-6	Spring, choke return (for all except 3, 18)	1
32	83-148-68	Bushing, choke lever retainer (for all except 3, 18) (NLA)	1
33	83-44-235	Choke shaft, (for all except 3, 18)	1
—	83-44-246	Choke shaft (for 3, 18)	1
34	83-96-551	Screw-washer, choke bracket, no. 8-32 thread x 7/16" pan head (for all except 3, 18)	1
35	83-167-518	Bracket assembly, choke (for all except 3, 4, 18) (NLA)	1
—	83-167-515	Bracket assembly (for 4)	1
36	83-52-521	Swivel assembly, choke cable support (for all except 3, 18)	1
37	VB243	Lever assembly, choke (for 3, 18)	1
—	LQ55	Repair kit	
—	Q47	Gasket set (also included in repair kit)	1

* Not serviced separately
† Parts included in Q47 gasket set
†† Parts included in LQ55 repair kit

OPERATION, Fig. 1

Fuel from supply tank flows to **float valve seat** (1), through **fuel valve** (2) and into **fuel bowl** (3). As the level in fuel bowl increases, the **float** (4) rises, shutting off fuel supply by forcing **fuel valve** (2) into seat. As fuel is being used, the float lowers and allows additional fuel to enter bowl through the fuel valve.

Fuel from the bowl enters the **main fuel jet** (5), then through and up to the **main nozzle** (7). At full throttle, fuel passes through **main nozzle** (7) where it is mixed with air from **nozzle air bleed** (8) and enters into **venturi** (9). At low idle speeds, fuel flows through the **idle jet** (10), up the **idle channel** (11), around **idle adjustment** (12) and into the **emulsion chamber** (13), where it is mixed with air entering the **idle air vent** (14). This air-fuel mixture then enters the throttle bore of carburetor through the outer **idle hole** (15). As the throttle is gradually opened, the inner hole starts to feed the throttle bore, and assists the **main nozzle** (7) in taking over the full throttle range.

When starting, the **choke valve** is closed and the **throttle valve** (16) is opened causing an abnormally high suction on both idle and main systems, thus providing a rich mixture for starting.

CARBURETOR TROUBLES — CAUSES AND REMEDIES

Dirt is the major cause of field service carburetor problems. An adequate Fuel Filter must be used between the tank and carburetor, and should be serviced frequently. Service Air Filter daily — Keep carburetor and linkage free of dirt.

FUEL LEAKS FROM CARBURETOR

Float level set too high: Remove bowl, invert carburetor and set float LEVEL and float DROP per Fig. 2 and Float Setting Instructions, page 2.

Dirt under inlet needle valve: Remove inlet valve, clean seat by rinsing in mild solvent or clean fuel, and blow off with compressed air.

Bowl vent plugged: Remove bowl and blow thru body vent hole with compressed air.

Collapsed float, caused by blowing assembled carburetor with compressed air: Replace float.

Carburetor gummed from storage - float stuck: Remove fuel bowl and clean.

ENGINE SMOKES AND RUNS RICH

Dirty air filter: Clean per instructions.

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instruction, page 2.

Bowl retainer gasket leaks: Tighten securely, or replace.

Air bleed in carburetor plugged: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

ENGINE RUNS LEAN

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instructions, page 2.

Idle holes plugged. Dirt in fuel delivery channels: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

Low fuel level: See Fig. 2 and Float Setting Instructions, page 2.

Fuel filter plugged: Remove and clean.

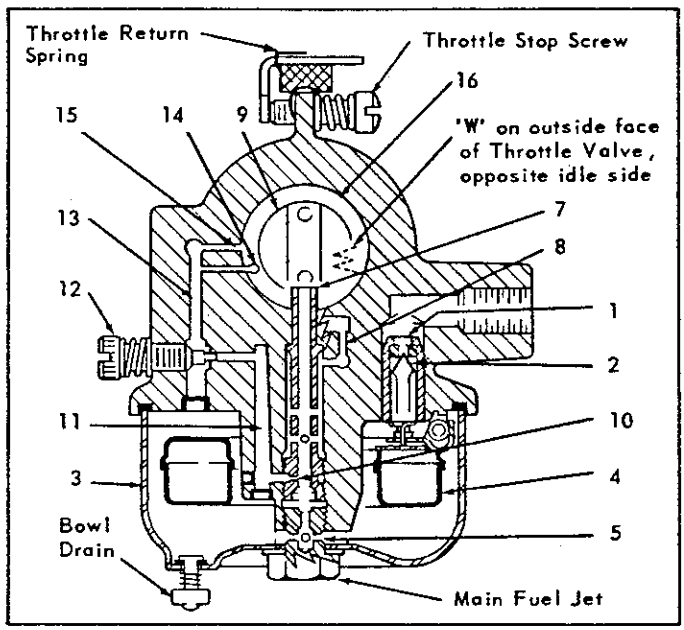


Fig. 1

ENGINE STARTS HARD

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instructions, page 2.

No fuel in carburetor: Check carburetor drain valve. Clean tank, filter and carburetor. Check fuel lines for obstructions, and test fuel pump.

Choke valve not closing: Check linkage for proper travel.

GOVERNOR SURGE

Governor sticking: Check linkage for binding.

Throttle shaft and valve binding: Remove and replace shaft if worn. Clean carburetor body and reassemble throttle shaft.

DISASSEMBLY

Before disassembling: Clean outside of carburetor from all foreign material.

CAUTION: When cleaning a completely assembled carburetor, **do not** blow with compressed air, you may collapse the float.

DO NOT soak or boil carburetor or body in chemical solutions. Idle channel is permanently sealed — solution will seep in and cause corrosion. Use a mild solvent, fuel oil or kerosene.

Disassemble parts in the following sequence: Refer to exploded view, page 2.

1. Main fuel jet ..... (4)
2. Retainer gasket ..... (5)
3. Fuel bowl ..... (2)
4. Fuel bowl gasket ..... (3)
5. Float shaft ..... (7)
6. Float and spring ..... (6, 8)
7. Fuel valve-spring ..... (9)
8. Idle needle assembly . (11)
9. Throttle stop screw ... (13)
10. Choke valve screws .. (18)
11. Choke valve ..... (22)
12. Choke shaft ..... (19)
13. Throttle valve screws . (18)
14. Throttle valve ..... (17)
15. Throttle shaft ..... (14)
16. Throttle shaft seal .... (16)
17. Throttle return spring (15)

CAUTION: Do not remove nozzle (Ref. 10) from carburetor, unless replacing it with a new **service nozzle** — idle holes will not line up. Tighten 15 to 20 inch pounds torque. Use a proper fitted tool to prevent damage to slot in nozzle head.

Viton seat for fuel valve can be replaced if necessary. Pull out by means of a small hook on the end of a wire paper clip.

Clean throttle shaft seal in fuel oil or kerosene and dry. Re-oil with No. 30 weight oil or equivalent.

REASSEMBLY

Wash all other parts with carburetor cleaning solvent and blow off with compressed air.

Install choke shaft and valve. Mount valve with **part number** toward the outside with the valve in a closed position.

Mount throttle valve, with letter **"W"** on valve facing outward and opposite idle side of carburetor. Make certain valve plate does not bind when opening and closing throttle. Be sure that return spring tension holds throttle valve closed.

Viton fuel valve seat; press firmly in place with groove end toward seat hole.

Tighten **main fuel jet** (4), to 35 inch pounds torque.

FLOAT SETTING, Fig. 2

Mount all other parts in reverse order of disassembly. Hook fuel valve spring under float adjustment tab, and float support spring as illustrated in fig. 2. Float should be .030/.070 inch from top of body casting rim - bend adjustment tab to raise or lower fuel level. Float drop should be ±.060 inch from end of nozzle boss. Bend float drop tab to adjust.

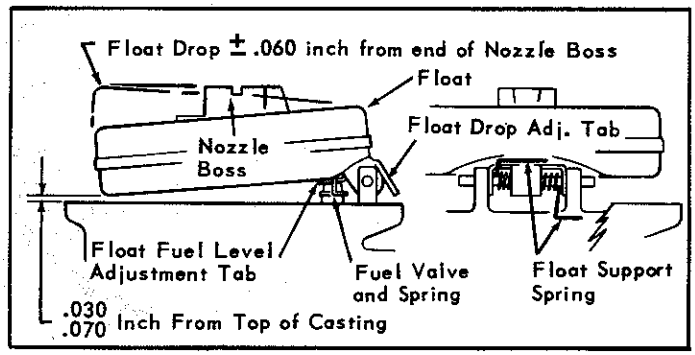


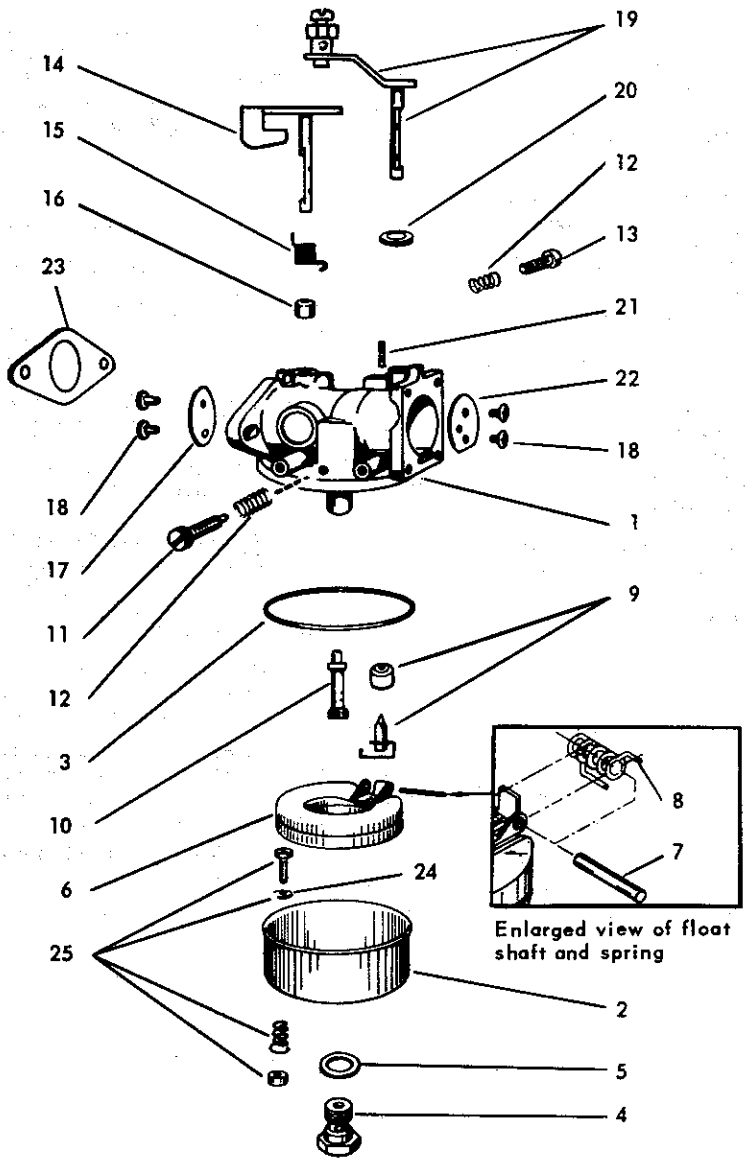
Fig. 2, **FLOAT SETTING**

ADJUSTMENTS, Fig. 3

Turn **Idle speed screw** (13) in, until throttle valve is slightly open. With engine warmed up and running, turn adjusting screw in or out as required to obtain desired low idle speed (1000 to 1200 r.p.m.).

The **Idle adjusting needle** (11) should be seated lightly (clockwise), then backed out **1 + 1/8 turns** as a preliminary setting. With engine warmed up and running at about 1200 R.P.M., fine tune idle mixture for smooth steady running.

The **Main Metering Jet** (4), for high speed operation is **fixed** (not adjustable).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Enlarged view of float shaft and spring
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L115 Series (Walbro No. LMH34), L116 Series (Walbro No. LMH33)

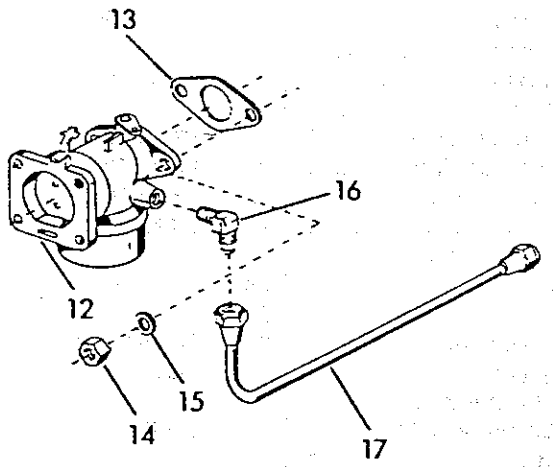
USE WITH MODELS W2-1230, W2-880 (see pg. 81)

ITEM		PART NO.	DESCRIPTION	QTY
1	*	— — —	Throttle body	1
2		83-20-513	Fuel bowl with drain assembly	1
3	†	— — —	Gasket, fuel bowl	1
4	††	83-112-666	Main fuel jet (.006)	1
5	†	— — —	Gasket, main jet, bowl retainer	1
6		83-75-502	Float, assembly	1
7	††	— — —	Shaft, float	1
8	††	— — —	Spring, float support	1
9	††	— — —	Fuel valve and viton seat	1
10		83-86-174	Nozzle, main (service) (for L115)	1
—		83-86-221	Nozzle, main (service) (for L116)	1
11	††	— — —	Needle, idle	1
12	††	— — —	Spring, idle needle, and stop (1 in kit)	2
13		83-96-18	Screw, throttle stop, no. 10-32 thread x 3/8" fill. head	1
14		83-30-887	Throttle shaft assembly (includes items 15, 16)	1
15		83-98-240	Spring, throttle return	1
16		83-156-18	Seal, throttle shaft	1
17		83-34-18	Valve, throttle	1
18		83-96-263	Screw, throttle and choke valve, no. 6-32 thread x 3/16" pan head	4
19		83-40-796	Choke shaft assembly (for L115)	1
—		83-40-693	Choke shaft assembly (for L116)	1
20		83-156-21	Seal, choke shaft	1
21		83-96-13	Spring, choke stop	1
22		83-62-70	Valve, choke (for L115)	1
—		83-62-50	Valve, choke (for L116)	1
23	†	— — —	Gasket, flange	1
24	†	— — —	Gasket, bowl drain	1
25		83-154-503	Kit, bowl drain	1
—	†	Q50	Gasket set (also included in repair kit)	1
—		LQ56	Repair kit	1

* Not serviced separately
† Parts included in Q50 gasket set
†† Parts included in LQ56 repair kit

L116S1 Carburetor

USE WITH MODEL W2-880



ITEM	PART NO.	DESCRIPTION	QTY.	NET WT. LB.	OZ.
12	L116S1	Carburetor (LMH33), with gasket	1		14
—	Q50	Carburetor gasket set	1		1
—	LQ56	Carburetor repair kit	1		3
13	QC12A	Gasket, carburetor flange	1		1
14	PD10	Nut, 5/16"-18 thread, hex. steel	2		1
15	PH14D	Washer, 5/16" plain, steel	2		1
16	RF1225	Elbow, 1/4" tubing nut	1		1
17	RM197	Fuel line, 12-1/2" long tubing with nuts	1		3

OPERATION, Fig. 1

Fuel from supply tank flows to **float valve seat** (1), through **fuel valve** (2) and into **fuel bowl** (3). As the level in fuel bowl increases, the **float** (4) rises, shutting off fuel supply by forcing **fuel valve** (2) into seat. As fuel is being used, the float lowers and allows additional fuel to enter bowl through the fuel valve.

Fuel from the bowl enters the **main fuel jet** (5), then through and up to the **main nozzle** (7). At full throttle, fuel passes through **main nozzle** (7) where it is mixed with air from **nozzle air bleed** (8) and enters into **venturi** (9). At low idle speeds, fuel flows through the **idle jet** (10), up the **idle channel** (11), around **idle adjustment** (12) and into the **emulsion chamber** (13), where it is mixed with air entering the **idle air vent** (14). This air-fuel mixture then enters the throttle bore of carburetor through the outer **idle hole** (15). As the throttle is gradually opened, the inner hole starts to feed the throttle bore, and assists the **main nozzle** (7) in taking over the full throttle range.

When starting, the **choke valve** is closed and the **throttle valve** (16) is opened causing an abnormally high suction on both idle and main systems, thus providing a rich mixture for starting.

CARBURETOR TROUBLES — CAUSES AND REMEDIES

Dirt is the major cause of field service carburetor problems. An adequate Fuel Filter must be used between the tank and carburetor, and should be serviced frequently. Service Air Filter daily — Keep carburetor and linkage free of dirt.

FUEL LEAKS FROM CARBURETOR

Float level too high: See Fig. 2 and Float Setting Instructions page 2.

Dirt under inlet needle valve: Remove inlet valve, clean seat by rinsing in mild solvent or clean fuel, blow off with compressed air.

Bowl vent plugged: Remove bowl and blow thru body vent hole with compressed air.

Collapsed float, caused by blowing assembled carburetor with compressed air: Replace float.

Carburetor gummed from storage - float stuck: Remove fuel bowl and clean.

ENGINE SMOKES AND RUNS RICH

Dirty air filter: Clean per instructions.

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instruction, page 2.

Bowl retainer gasket leaks: Tighten securely, or replace.

Air bleed in carburetor plugged: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

ENGINE RUNS LEAN

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instructions, page 2.

Idle holes plugged. Dirt in fuel delivery channels: Remove fuel bowl and idle needle. Clean thoroughly with compressed air.

Low fuel level: See Fig. 2 and Float Setting Instructions, page 2.

Fuel filter plugged: Remove and clean.

ENGINE STARTS HARD

Improper adjustment: Set Idle Needle 1 turn open from seat. Refer to Adjustment Instructions, page 2.

No fuel in carburetor: Check carburetor drain valve. Clean tank, filter and carburetor. Check fuel lines for obstructions, and test fuel pump.

Choke valve not closing: Check linkage for proper travel.

GOVERNOR SURGE

Governor sticking: Check linkage for binding.

Throttle shaft and valve binding: Remove and replace shaft if worn. Clean carburetor body and reassemble throttle shaft.

DISASSEMBLY

Before disassembling: Clean outside of carburetor from all foreign material.

CAUTION: When cleaning a completely assembled carburetor, **do not** blow with compressed air, you may collapse the float.

DO NOT soak or boil carburetor or body in chemical solutions. Idle channel is permanently sealed — solution will seep in and cause corrosion. Use a mild solvent, fuel oil or kerosene.

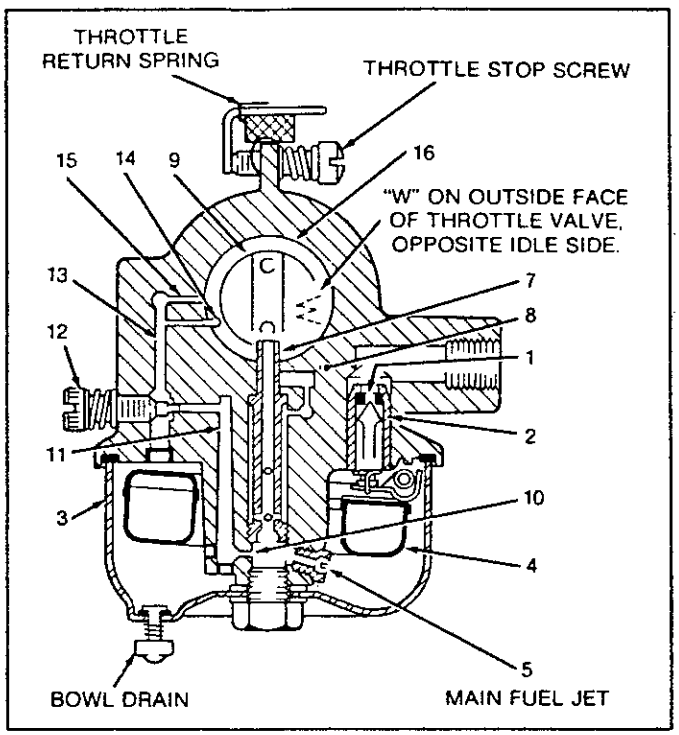


Fig. 1

Disassemble parts in the following sequence: Refer to exploded view, page 2.

1. Bowl retainer screw .... (4)
2. Retainer gasket ..... (5)
3. Fuel bowl ..... (2)
4. Fuel bowl gasket ..... (3)
5. Float shaft ..... (7)
6. Float and spring ..... (6, 8)
7. Fuel valve-spring ..... (9)
8. Idle needle assembly . (11)
9. Throttle stop screw ... (13)
10. Choke valve screws .. (18)
11. Choke valve ..... (22)
12. Choke shaft ..... (19)
13. Throttle valve screws . (18)
14. Throttle valve ..... (17)
15. Throttle shaft ..... (14)
16. Throttle shaft seal .... (16)
17. Throttle return spring (15)

Viton seat for fuel valve can be replaced if necessary. Pull out by means of a small hook on the end of a wire paper clip.

Clean throttle shaft seal in fuel oil or kerosene and dry. Re-oil with No. 30 weight oil or equivalent.

REASSEMBLY

Wash all other parts with carburetor cleaning solvent and blow off with compressed air.

Install choke shaft and valve. Mount valve with **part number** toward the outside with the valve in a closed position.

Mount throttle valve, with letter **"W"** on valve facing outward and opposite idle side of carburetor. Make certain valve plate does not bind when opening and closing throttle. Be sure that return spring tension holds throttle valve closed.

Viton fuel valve seat; press firmly in place with groove end toward seat hole.

Tighten **main fuel jet** (25) to 12-16 inch pounds torque and **Bowl Screw (4), to 30-35 inch pounds.**

FLOAT SETTING, Fig. 2

Mount all other parts in reverse order of disassembly. Hook fuel valve spring under float adjustment tab, and float support spring as illustrated in fig. 2. Float should be .030/.070 inch from top of body casting rim — bend adjustment tab to raise or lower fuel level — **Float drop should be ± .060 inch from end of nozzle boss.**

ADJUSTMENTS, Fig. 3

Turn **Idle speed screw** (13) in, until throttle valve is slightly open. With engine warmed up and running, turn adjusting screw in or out as required to obtain desired low idle speed (1000 to 1200 r.p.m.).

The **Idle adjusting needle** (11) should be seated lightly (clockwise), then backed out **1 ± 1/8 turns** as a preliminary setting. With engine warmed up and running at about 1200 R.P.M., fine tune idle mixture for smooth steady running.

The **Main Metering Jet** (25) for high speed operation is **fixed** (not adjustable).

ADJUSTABLE MAIN JET **for high altitude operation is available for service.**

Part No. ***83-100-540***

Includes: (1) Fiber washer
(1) Adjustable needle assembly

Remove and discard gasket (5) and screw (4). Replace with 83-100-540 Adjustable Needle Assembly.

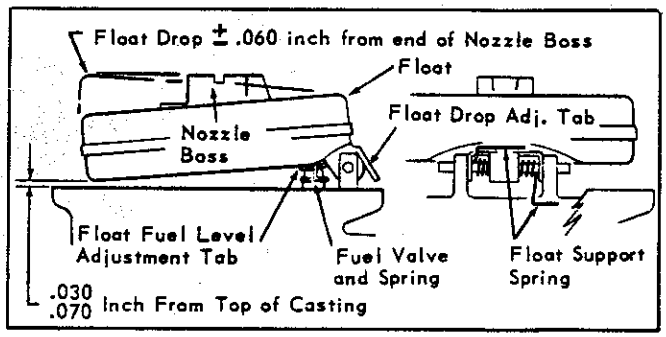
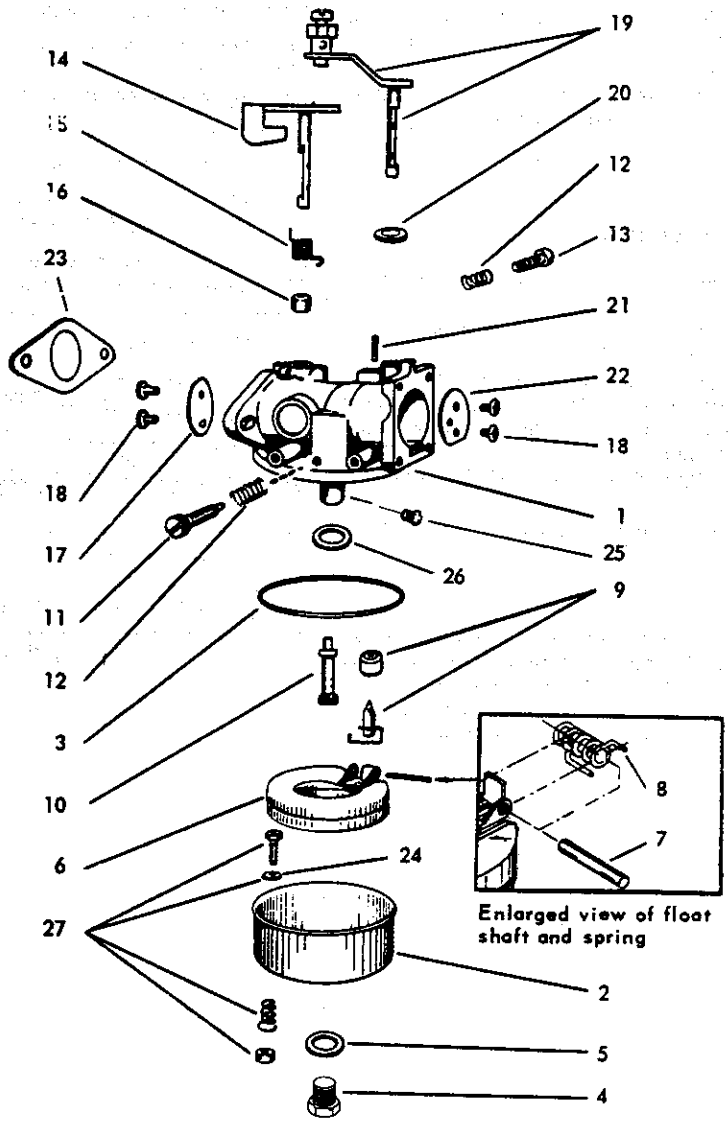


Fig. 2, FLOAT SETTING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Enlarged view of float shaft and spring

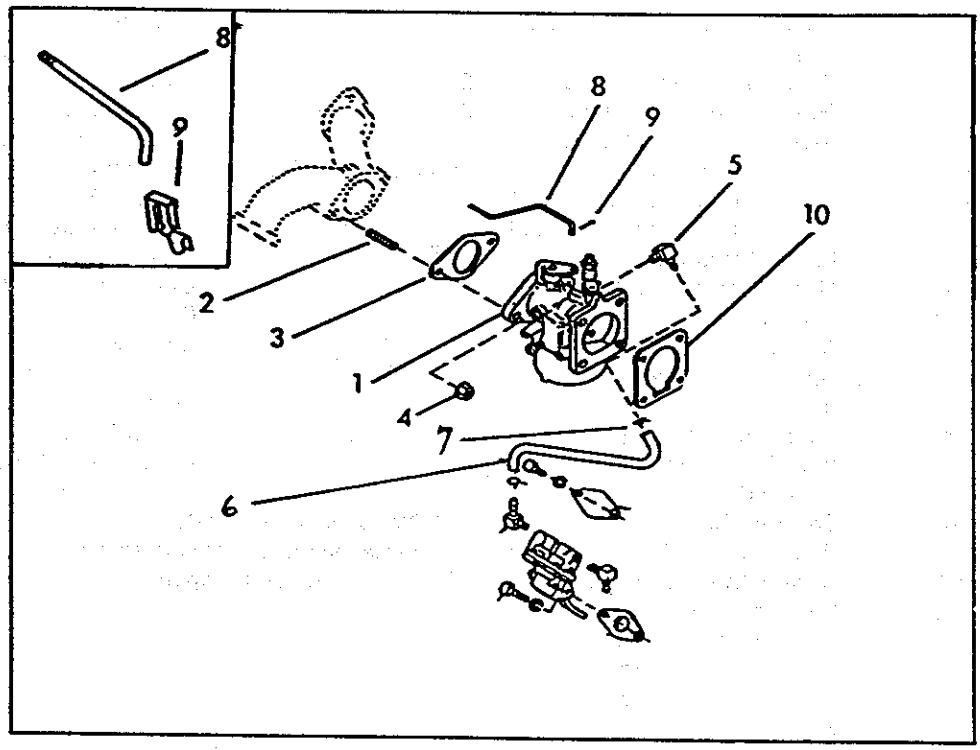
L118 Series (Walbro No. LMH43), L119 Series (Walbro No. LMH44)

USE WITH MODELS W2-1235, W2-1230 (see pg. 86)

ITEM		PART NO.	DESCRIPTION	QTY
1	*	— — —	Throttle body	1
2		83-20-513	Fuel bowl with drain assembly	1
3	†	— — —	Gasket, fuel bowl	1
4		83-96-155	Screw, fuel bowl retainer	1
5	†	_ — —	Gasket, fuel bowl retainer (outer)	1
6		83-75-502	Float assembly	1
7	††	— — —	Shaft, float	1
8	††	— — —	Spring, float support	1
9	††	— — —	Fuel valve and viton seat	1
10		83-86-244	Nozzle, main (L118)	1
—		83-86-261	Nozzle, main (L119)	1
11	††	— — —	Needle, idle	1
12	††	— — —	Spring, idle needle, and stop (1 in kit)	2
13		83-96-18	Screw, throttle stop, no. 10-32 thread x 5/8" fill. head	1
14		83-30-887	Throttle shaft assembly (includes 15, 16)	1
15		83-98-240	Spring, throttle return	1
16		83-156-18	Seal, throttle shaft	1
17		83-34-18	Valve, throttle	1
18		83-96-263	Screw, throttle and choke valve, no. 4-40 thread x 3/16" pan head	4
19		83-40-796	Choke shaft assembly with swivel	1
20		83-156-21	Seal, choke shaft	1
21		83-98-13	Spring, choke stop	1
22		83-62-50	Valve, choke	1
23	†	— — —	Gasket, flange	1
24	†	— — —	Gasket, bowl drain	1
25	††	83-114-0740	Jet, main fuel [L118 (LQ57)]	1
—	††	83-114-0700	Jet, main fuel [L119 (LQ58)]	1
26	†	— — —	Gasket, fuel bowl to body (inner)	1
27		83-154-503	Kit, bowl drain	1
—	††	Q51	Gasket set (also included in repair kit)	1
—		LQ57	Repair kit (L118)	1
—		LQ58	Repair kit (L119)	1

* Not serviced separately
† Parts included in Q51 gasket set
†† Parts included in repair kit

L118, L119, L122 Carburetor



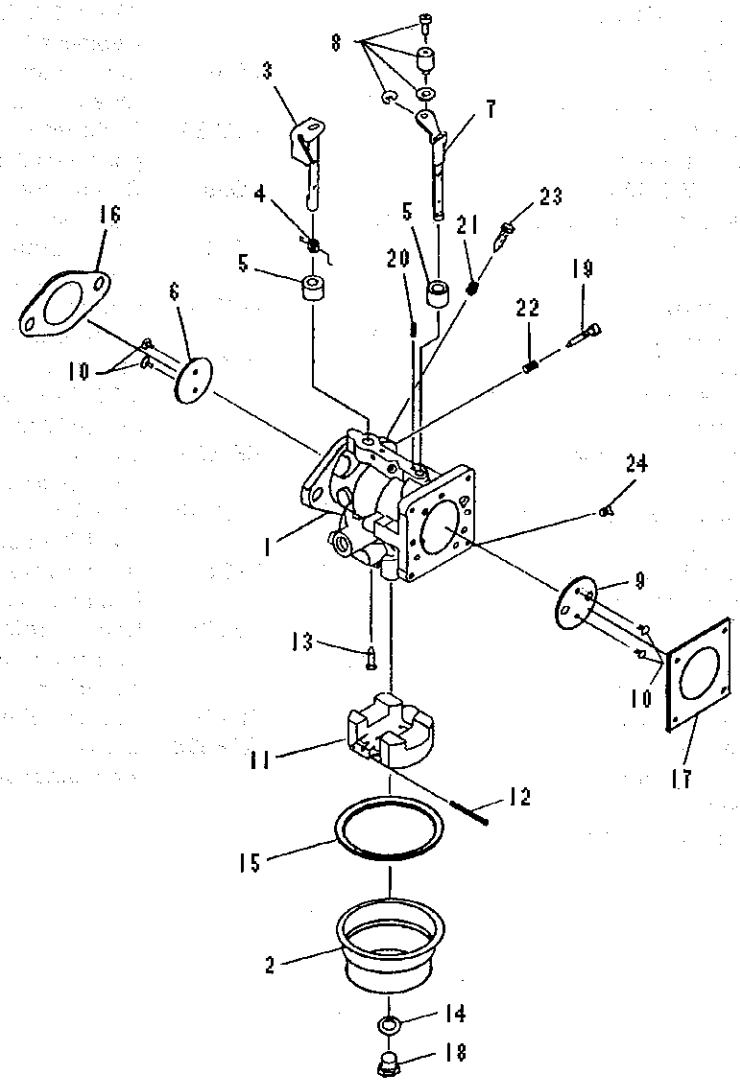
L118, L119, L122 Carburetor

USE WITH MODELS W2-1230, W2-1235, W2-1250 (see pg. 88)

ITEM	PART NO.	DESCRIPTION	QTY.	NET WT. LB.	OZ.
1	L119S1	Carburetor with gasket (replaces L115) (W2-1230) (NLA) (obsolete)	1		14
—	LQ58	Carburetor repair kit	1		3
—	LQ51	Gasket kit			
—	L118S1	Carburetor with gasket (W2-1235) (NLA) (obsolete)	1		14
—	LQ57	Carburetor repair kit	1		3
2	PC549	Stud, carburetor mounting	2		1
3	QC12A	Gasket, carburetor flange	1		1
4	PD256	Lock nut, 5/16"-24 thread, flange type	2		1
5	RF1439	Elbow, 1/4" L.D. fuel hose	3		1
6	LL205-7	Fuel line, 1/4" I.D. hose	1		1
7	LK34	Hose clamp, fuel line (replaces LK30)	2		1
8	VE857	Rod, throttle carburetor and governor	1		1
9	XI32	Cotter pin, 3/64" x 3/8" long	1		1
10	QD860	Gasket, air cleaner adapter	1		1

ITEM	PART NO.	DESCRIPTION	QTY.	NET WT. LB.	OZ.
1	L122S2	Carburetor with gasket (W2-1230, W2-1235) (replaces L117)	1		14
—	LQ59	Carburetor repair kit	1		3
—	L122S1	Carburetor with gasket (W2-1250)	1		14
—	LQ59	Carburetor repair kit	1		3
2	PC549	Stud, carburetor mounting	2		1
3	QC12A	Gasket, carburetor flange	1		1
4	PD256	Lock nut, 5/16"-24 thread, flange type	2		1
5	RF1439	Elbow, 1/4" I.D. fuel hose	3		1
6	LL205-8	Fuel line, 1/4" I.D. hose	1		1
7	LK34	Hose clamp, fuel line	2		1
8	VE889	Rod, throttle, carburetor and governor	1		1
9	PK178	Rod end clip R.H.	1		1
10	QD860B	Gasket, air cleaner adapter	1		1

L122S1, L122CS1 Carburetor Service Parts List



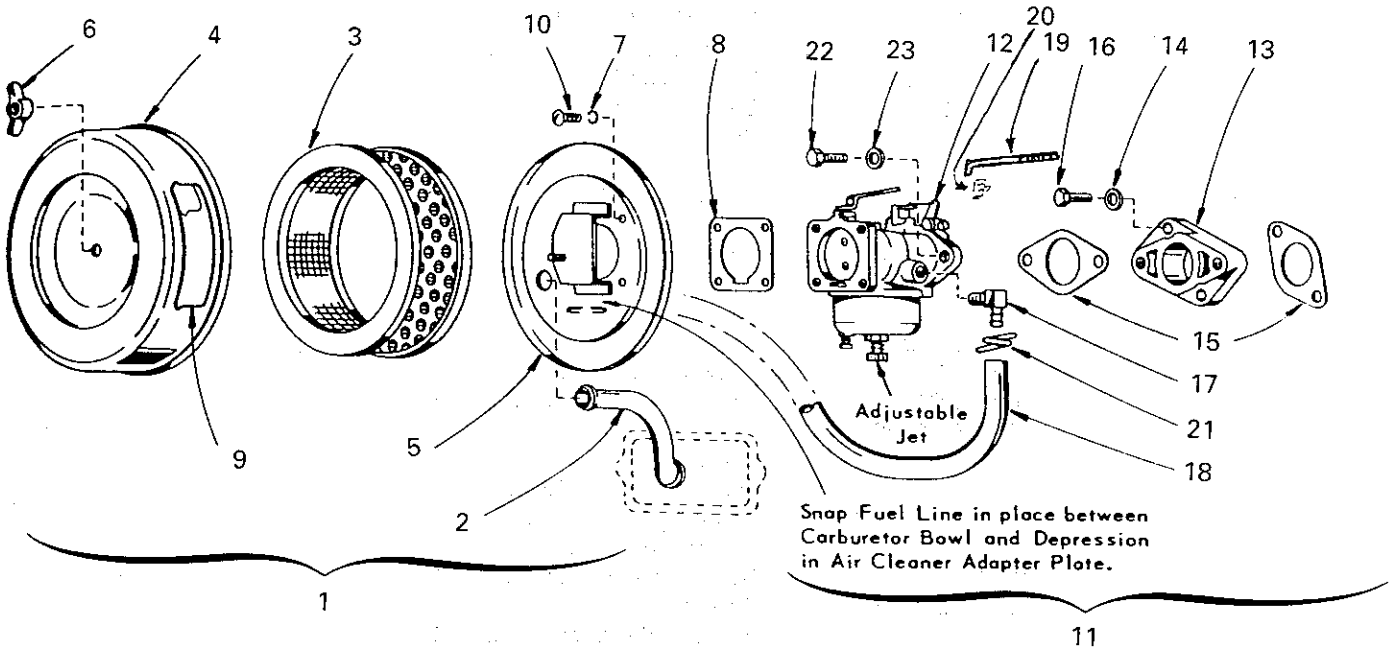
L122 Carburetor Service Parts List

USE WITH MODELS W2-1230, W2-1235 (L12252), W2-1250 (L122S1) (see pg. 90)

ITEM		PART NO.	DESCRIPTION	QTY
1		—	Throttle body (not serviced)	1
2		83-20-135	Bowl, fuel	1
3		83-30-1035	Shaft assembly (includes items 4 and 5)	1
4		83-98-3050	Spring	1
5	†	83-156-508	Seal, Throttle shaft	2
6		83-34-18	Valve	1
7		83-40-878	Shaft assembly	1
8		83-52-505	Swivel assembly	1
9		83-62-124	Valve	1
10		83-96-207	Screw, no. 4-40 thread x .188 washer HD	4
11		83-75-566	Float	1
12	†	83-78-41	Shaft	1
13	†	83-82-529	Viton tipped needle and clip	1
14	††	83-92-300	Gasket	1
15	††	83-92-301	Gasket	1
16	††	QC12A	Gasket	1
17	††	QD860B	Gasket	1
18		83-96-340	Screw, 3/8"-24 thread x .26 LG	1
19		83-96-349	Screw	1
20	†	83-98-13	Spring, choke stop	1
21	†	83-98-14	Spring, idle needle	1
22		83-98-3059	Spring, throttle adjust screw	1
23	†	83-102-14	Needle	1
24		83-114-0600	Jet-main .060	1
—	†	Q55	Gasket set	1
—		LQ59	Repair kit	1

† Parts included in LQ59 repair kit
†† Parts included in Q55 gasket set

LTA100 Walbro Carburetor And Air Cleaner Conversion Kit



LTA100 Walbro Carburetor And Air Cleaner Conversion Kit

USE WITH MODELS S12D, S14D (FOR ENGINES BUILT PREVIOUS TO SERIAL NO. 5675598 AND FURNISHED WITH L86C, L86D, L95, L95A ZENITH CARBURETORS THAT ARE NO LONGER AVAILABLE (see pg. 92)

ITEM	PART NO.	DESCRIPTION	QTY
1	LAR138	Air cleaner and breather tube assembly (includes 2-10)	1
2	LL201	Breather tube	1
3	LO194A	Air cleaner element	1
4	LO194F	Air cleaner cover	1
5	LO194H	Air cleaner mounting plate	1
6	PD147	Wing nut, air cleaner	1
7	PE14	Lock washer, air cleaner mounting	4
8	QD860	Gasket, air cleaner adapter	1
9	SD308	Decal	1
10	XA7	Screw, no. 10-32 thread x 3/8"	4
11	LFA100	Carburetor assembly includes 12-21)	1
12	L106A	Carburetor	1
13	LF146	Adapter, carburetor	1
14	PH14D	Washer, plain	4
15	QC12A	Gasket, carburetor to adapter and adapter to engine block	2
16	XD16B	Hex head screw	4
17	RF1439	Elbow, fuel inlet	1
18	LL178-24	Fuel line	1
19	PI228	Rod, governor control	1
—	PF163	Plug, hole (not shown)	1
20	PK178	Clip, rod end	1
21	LK30	Hose clamp, fuel line	2
—	ML38	Instruction sheet	1

LTA100 Series (Walbro Carburetor And Air Cleaner) (Replaced By LTA101)

KIT CONTENTS:

LAA 138 ..... Air Cleaner – breather tube assembly
LFA 100 ..... Carburetor assembly (Walbro)
LL 178-24 ..... Fuel line
PI 228 ..... Throttle rod
PF 163 ..... Plug
PK 178 ..... Rod clip

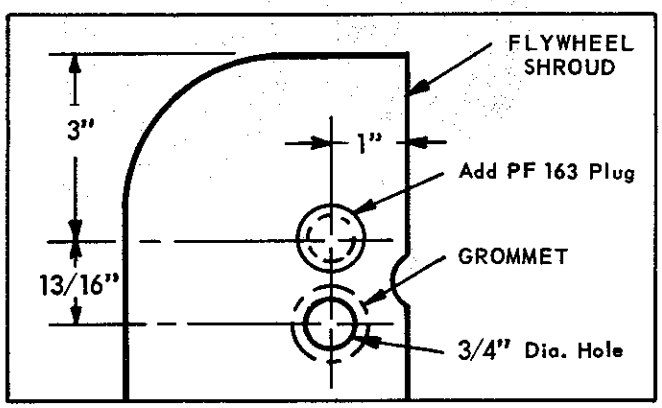
DISASSEMBLY; Zenith carburetor and related parts

1. Disconnect and discard fuel line, but retain hose clamps and fuel line grommets in flywheel shroud.
2. Disconnect throttle rod and retainer clip from governor lever – unscrew rod from carburetor throttle lever swivel block. Discard clip and rod but retain locknut.
3. Remove and discard breather tube.
4. Remove and discard the two carburetor flange mounting nuts and washers.
5. Take off and discard complete 'Zenith' carburetor-air cleaner unit.
6. Remove and discard the two carburetor flange mounting studs in cylinder block.

ASSEMBLY; Walbro Carburetor and related parts

Note: One fuel line hole in flywheel shroud has to be relocated.

1. Remove fuel line grommet from carburetor side of shroud and drill a 3/4 inch dia. hole 13/16 inches down from existing hole, as shown in the following illustration.

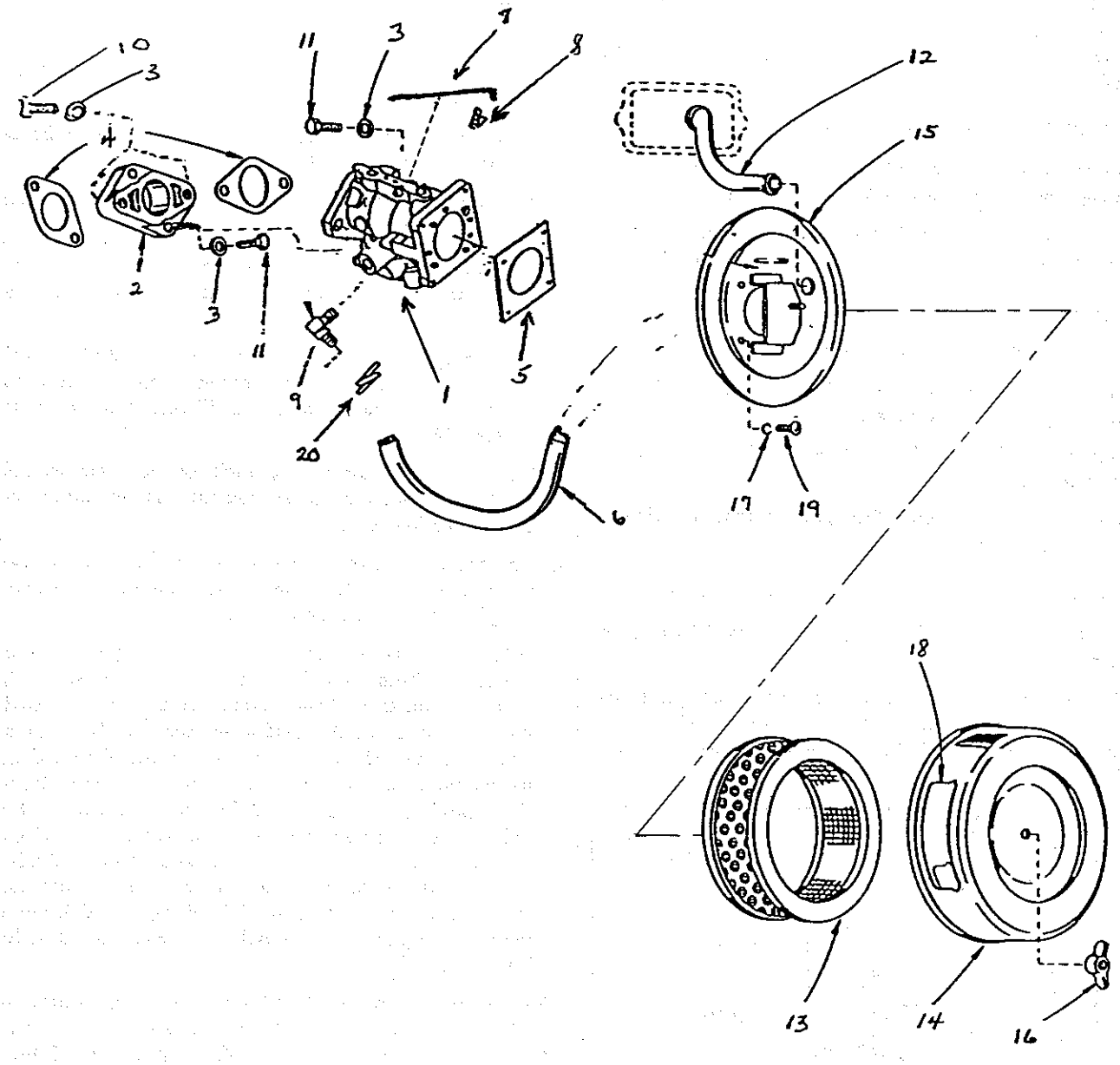


2. Mount PF 163 plug in upper hole and rubber fuel line grommet in lower hole.
3. Mount new fuel line, LL 178-24, from tank thru shroud holes.
4. With reference to attached form ***MP-1499-2;***
   a. Mount 'Walbro' carburetor assembly LFA 100 to cylinder block flange using new flange gasket.
   b. Mount air cleaner assembly LAA 138 to carburetor with new gasket.
   c. Attach new breather tube from air cleaner adapter plate to breather-inspection cover.
   d. Connect fuel line from shut-off valve in tank to elbow in carburetor. Be sure hose clamps are in place.
   e. Snap fuel line in place between carburetor bowl and depression in air cleaner adapter plate, as shown in exploded parts illustration of form MP-1499-2.
5. Turn locknut about 3/4 inch on to new PI 228 throttle control rod. Screw rod into swivel block on carburetor bell crank.
6. The throttle control rod connection from the carburetor to governor lever must be adjusted to proper length in the following manner:

   With the ***control rod*** disconnected from the ***governor lever,*** as illustrated in *Fig. 48, Form MI-1122-2,* push the rod toward the carburetor as far as it will go. This will put the ***carburetor throttle lever*** in a wide open position. The governor lever should then be extended as far as possible in the same direction. Holding both parts in the above position, the rod should be screwed in or out of the ***swivel block*** on the carburetor, until the ***bent end*** of the rod will register with ***hole*** in lever. Attach throttle control rod to governor lever with PK 178 clip, and tighten ***locknut*** against swivel block on carburetor throttle lever.

After assembly is completed and engine is started – Adjust for ***Correct Engine Speed*** by following the instruction in the attached *Form MI-1122-2,* page 26 from Engine Instruction Manual. Adjust carburetor ***Idle*** and ***Load Speeds*** per attached *ML-37-2* Instruction Sheet, *page 2.*

LFA112 Walbro Carburetor Assembly And LAA219 Air Cleaner Assembly



LFA112 Walbro Carburetor Assembly And LAA219 Air Cleaner Assembly

USE WITH MODELS S12D, S14D BEGINNING WITH ENGINE SERIAL NOS. 5675598 AND 6197944 (see pg. 95)

ITEM	PART NO.	DESCRIPTION	QTY
1	• L123S2	Carburetor, with gasket fixed jet type, (Walbro) (WHG31) (replaces L106AS1 adj. jet and L106S1 fixed jet)	1
—	LQ60	Repair kit (L123S2)	1
—	Q55	Gasket kit (L123S2)	1
—	LQ54A	Repair kit (L106AS1, L106S1) (replaces LQ54)	1
—	Q46	Gasket set (L106AS1, L106S1)	1

NOTE: For S12D, S14D engines previous to serial no. 5675598 use LTA101 carburetor and air cleaner conversion kit for replacement of L86C, L86D, L95, L95A Zenith carburetors.
For serial nos. between 5675598 and 6177944 use L123S2 replacement kit. For serial no. 6197944 and later use L123S1 replacement kit.

—	LFA112	Carburetor assembly (includes 1-4, 9-11)	1
2	LF146-2	Adapter, carburetor	1
3	PH14D	Washer, plain	4
4	QC12A	Gasket, carburetor to adapter and adapter to engine block	2
5	QD860B	Gasket, air cleaner to carburetor	1
6	LL178-24	Fuel line	1
7	PI228	Governor control rod	1
8	PK178	Retainer clip, governor control rod	1
9	• RF1439	Elbow, in carburetor for fuel line	1
10	XB77	Socket head screw, adapter to carburetor	2
11	XD16B	Heax head screw, adapter to engine block	2
12	• LL201	Breather tube	1
13	• LO194A	Element, air cleaner	1
14	• LO194F	Housing, air cleaner	1
15	• LO194H	Adapter plate, air cleaner	1
16	• PD147	Wing nut, air cleaner mounting	1
17	• PE14	Lock washer	4
18	• SD308	Decal, air cleaner instruction	1
19	• XA7	Screw, no. 10-32 thread x 3/8" long, round head for air cleaner mounting	4
20	LK30	Hose clamp, fuel line	2
—	• PF163	Blower housing plug 3/4" diameter (not shown)	1

• Parts included in LTA101 replacement kit

LTA101 Series (Walbro Carburetor And Air Cleaner Conversion Kit)

For carburetor replacement on S-12D and S-14D engines built previous to serial # 5,675,598 and furnished with L86C, L86D, L95 or L95A 'Zenith' carburetors that are no longer available for service.

KIT CONTENTS:

LAA 219	Air cleaner — breather tube assembly
LFA 112	Carburetor assembly (Walbro)
LL 178-24	Fuel line
PI 228	Throttle rod
PF 163	Plug
PK 178	Rod clip

DISASSEMBLY (Zenith carburetor and related parts)

1. Disconnect and discard fuel line, but retain hose clamps and fuel line grommets in flywheel shroud.

2. Disconnect throttle rod and retainer clip from governor lever (unscrew rod from carburetor throttle lever swivel block). Discard clip and rod but retain locknut.

3. Remove and discard breather tube.

4. Remove and discard the two carburetor flange mounting nuts and washers.

5. Take off and discard complete carburetor air cleaner unit.

6. Remove and discard the two carburetor flange mounting studs in cylinder block.

ASSEMBLY (Walbro carburetor and related parts)

Note: One fuel line hole in flywheel shroud must be relocated.

1. Remove fuel line grommet from carburetor side of shroud and drill a 3/4 inch diameter hole, 3/16 inches down from existing hole, as shown below.
2. Mount PF 163 plug in upper hole and rubber fuel line grommet in lower hole.
3. Mount new fuel line, LL 178-24 from tank through shroud holes.
4. With reference to Repair Manual MM304, pg. 32A:

   a. Mount 'Walbro' carburetor assembly LFA 112 to cylinder block flange using new flange gasket.

   b. Mount air cleaner assembly LAA 219 to carburetor with new gasket.

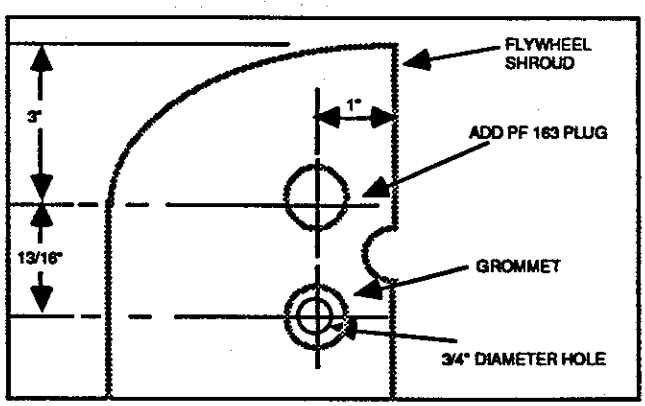
   c. Attach new breather tube from air cleaner adapter plate to breather-inspection cover.

   d. Connect fuel line from shut-off valve in tank to elbow in carburetor. Make sure the hose clamps are in place.

   e. Snap fuel line in place between carburetor bowl and depression in air cleaner adapter plate, as shown in exploded parts illustration of Repair Manual MM304, pg. 32A.

5. Turn locknut about 1 1/4 inches on to new PI 288 throttle control rod. Screw rod into swivel block on carburetor bell crank.
6. The throttle control rod connection from the carburetor to governor lever must be adjusted to proper length, as follows:

With the control rod disconnected from the governor lever, as illustrated on the reverse of this form, push the rod toward the carburetor as far as it will go. This will put the carburetor throttle lever in a wide open position. The governor lever should then be extended as far as possible in the same direction. Holding both parts in the above position, the rod should be screwed in or out of the swivel block on the carburetor, until the bent end of the rod will register with hole in lever. Attach throttle control rod to governor lever with PK 178 clip, and tighten locknut against swivel block on carburetor throttle lever.



After assembly is completed and engine is started, adjust for correct engine speed as follows:

1. Hook governor spring in correct hole of governor lever, then regulate spring tension with the adjusting screw. The governor lever has 7 holes for the governor spring, with the No. 1 hole closest to the fulcrum shaft.

Note: Two different length adjusting screws are required for the complete range of operating speeds (see chart).

2. The governor lever chart as shown here shows the **load** and **no load** speeds and the corresponding governor spring hole. After hooking the spring into the lever hole relative to the desired **load speed**, run the engine without load and regulate the spring tension with an **adjusting screw** until the required **no load** speed is obtained. The governor spring will have to be disconnected from the governor lever each time the screw is turned in or out.

A tachometer or revolution counter should be used against the crankshaft to check speed while adjusting the governor spring tension. The engine speed without load will vary from 75 to 180 revolutions per minute higher than the speed with load. For instance, if the engine is to operate at 3400 RPM under full load, the speed with no load will be 3520 RPM. Refer to the governor lever chart shown here for the variable between load speed and no load (high idle) speed.

ADJUSTMENTS

1. Set idle needle 1 turn open from seat, and main jet adjustment 1 1/4 turns open.

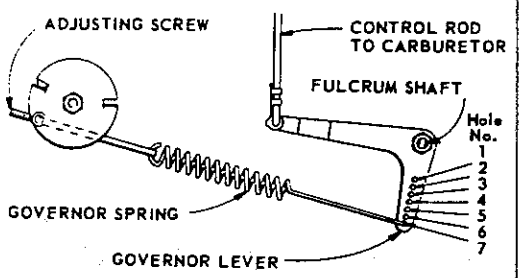
2.Turn throttle stop screw in until throttle valve is slightly open.

3. Adjust idle mixture for smooth low running with throttle valve closed and engine running at about 1200 RPM.

4. Adjust throttle stop screw for the desired low idle speed.

5. Main jet adjustment: Turn adjustment until engine runs smooth at operating speed. If engine hesitates when speeding up from idle to high speed, open adjustment 1/8 to 1/4 turn at a time until hesitation is eliminated.

'Walbro' Carburetor



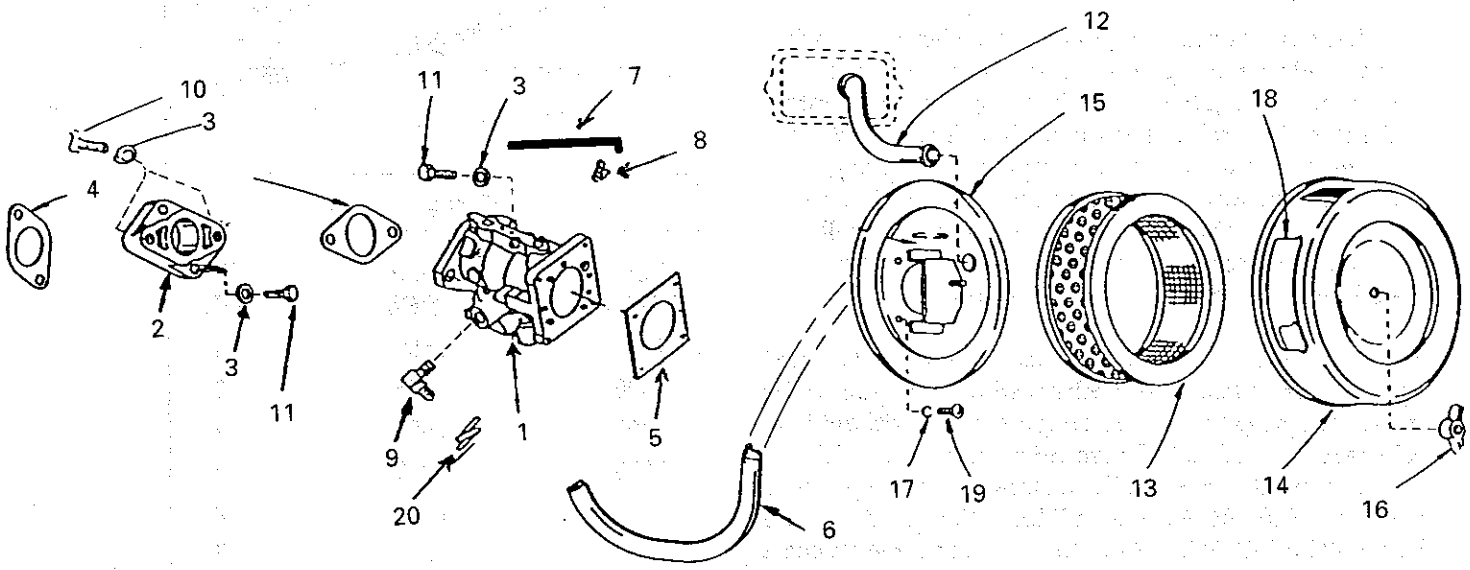
Use 3 15/16" long adjusting screw

LOAD RPM	NO LOAD RPM	HOLE NO.
1600	1680	1
1800	1875	2
1900	1985	2
2000	2090	2
2100	2190	2
2200	2305	3
2300	2395	3
2400	2550	4
2500	2630	4

Use 3 5/8" adjusting screw

2600	2735	4
2700	2820	5
2800	2920	5
2900	3020	5
3000	3130	5
3100	3215	5
3200	3350	6
3300	3430	6
3400	3520	6
3500	3605	6
3600	3695	6

LTA101Walbro Carburetor And Air Cleaner Conversion Kit
Prior To Serial No. 5675598 (Replaces LTA100)

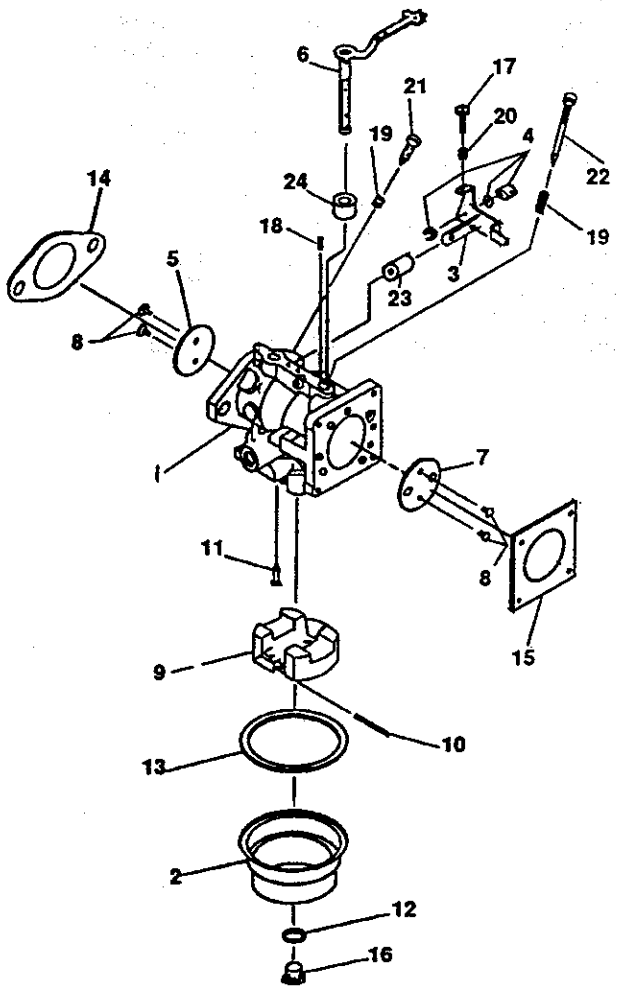


LTA101 Walbro Carburetor And Air Cleaner Conversion Kit
Prior To Serial No. 5675598 (Replaces LTA100)

USE WITH MODELS S12D, S14D (see pg. 99)

ITEM	PART NO.	DESCRIPTION	QTY
1	L123S2	Carburetor assembly (includes 2-20)	1
2	LF146-2	Adapter, carburetor to block	1
3	PH14D	Flat washer, adapter to engine block mounting screws	2
4	QC12A	Gasket, carburetor to adapter and adapter to block	2
5	QD860B	Gasket, air cleaner to carburetor	1
6	LL178-24	Fuel line	1
7	PI228	Governor control rod	1
8	PK178	Retainer clip, governor control rod	1
9	RF1439	Elbow, fuel inlet	1
—	PF163	Plug, blower housing	1
—	TTP20075	Instruction sheet	1
10	XB77	Socket head screws, adapter to carburetor	2
11	XD16B	Hex head screw, adapter to engine block	2
12	LL201	Breather tube	1
13	LO194A	Element, air cleaner	1
14	LO194F	Cover, air cleaner	1
15	LO194H	Mounting plate, air cleaner	1
16	PD147	Wing nut, air cleaner cover	1
17	PE14	Lock washer, air cleaner mounting to adapter	4
18	SD308	Decal	1
19	XA7	Screw, mounting plate to carburetor	4
20	LK30	Hose clamp, fuel line	1

L123S1 Carburetor Service Parts List



L123S1 Carburetor Service Parts List

USE WITH MODELS S12D, S14D BEGINNING WITH SERIAL NO. 6197944 (see pg. 101)

ITEM		PART NO.	DESCRIPTION	QTY
1	*	— — —	Throttle body	1
2		83-20-135	Bowl, fuel	1
3		83-30-1071	Shaft assembly, throttle	1
4		83-52-515	Swivel, kit	1
5		83-34-18	Valve, throttle	1
6		83-40-877	Shaft assembly, choke	1
7		83-62-124	Valve, choke	1
8		83-96-207	Screw, no. 4-40 thread x .188 washer HD	4
9		83-75-566	Float	1
10	†	83-78-41	Shaft, float	1
11	†	83-82-528	Viton tipped needle and clip	1
12	††	83-92-300	Gasket, bowl retainer	1
13	††	83-92-301	Gasket, body to bowl	1
14	††	QC12A	Gasket, engine flange	1
15	††	QD860B	Gasket, inlet flange	1
16		83-96-340	Screw, 3/8"-24 thread x .26 LG	1
17		83-96-341	Screw, throttle adjust	1
18	†	83-98-13	Spring, choke stop	1
19	†	83-98-14	Spring, adjust	2
20		83-98-3035	Spring, throttle adjust	1
21	†	83-102-14	Needle, idle mixture	1
22	†	83-102-283	Needle, high speed	1
23	†	83-156-24	Seal, throttle shaft	1
24	†	83-156-18	Seal, choke shaft	1
—	†	Q55	Gasket set	1
—		LQ60	Repair kit	1

* Not serviced separately
† Parts included in LQ60 repair kit
†† Parts included in Q55 gasket set (not sold separately)