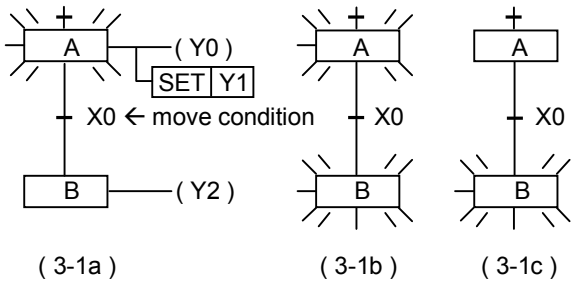
Index

◎ How STL Operates

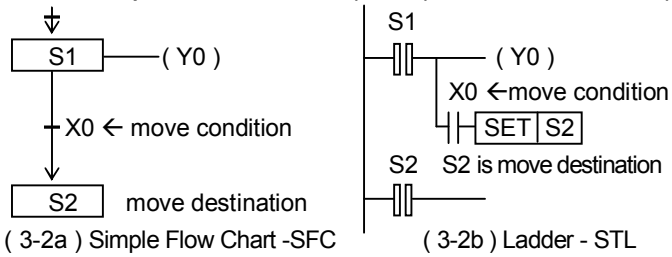
3 - 1 The state activate & move condition



(3-1a) (3-1b) (3-1c)

- ♦ When (3-1a) state A ON, execute the program belonged to state A, i.e. Y0 ON, Y1 ON, Y2 OFF. State B OFF, the program belonged to state B not executing.
- ♦ When move condition X0 ON (don't need to keep), then state B ON, i.e. state A ON and state B ON in one cycle time (3-1b) Y0,Y1,Y2 all ON.
- ♦ After one cycle state A auto OFF, state B still ON (3-1c) i.e. Y0 OFF, Y1 ON (SET), Y2 ON.
- ♦ Once the current STL state activates a second following state, the source STL state will auto reset.

3 - 2 Simple Flow Chart (SFC)& Ladder Chart (STL)



(3-2a) Simple Flow Chart -SFC (3-2b) Ladder - STL

- ♦ (3-2a) is Simple Flow Chart, (3-2b) is Ladder Chart.
- ♦ The state (S) can be connected to Output Relay directly.

- ♦ To Activate an STL state, need to drive the STL coil first.
  In the EX-series, the SET is used to drive an STL state to make it active.
- ♦ The formula is used M8002 & ZRST to initial STL state, and used M8002 & SET to start STL program.
- ♦ The RET instruction is end of STL state, let program return to ladder sequence.

3 - 3 STL & RET Operands : S0 ~ S999

3 – 3 – 1 : Single Flow Mode

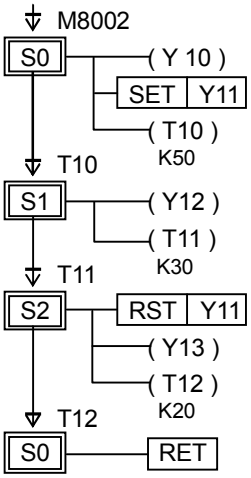


Fig 3-3-1a
Simple Flow Chart - SFC

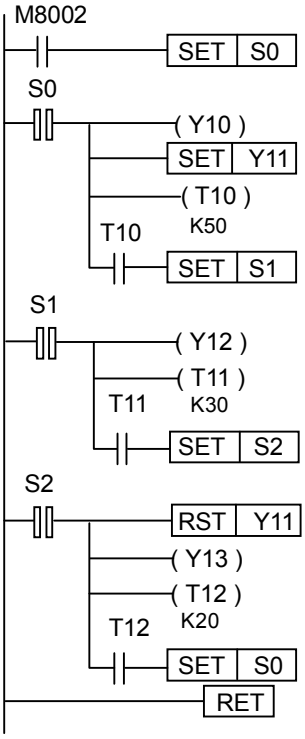


Fig 3-3-1b. Ladder - STL

LD	M	8002
SET	S	0
STL	S	0
OUT	Y	10
SET	Y	11
OUT	T	10
	K	50
LD	T	10
SET	S	1
STL	S	1
OUT	Y	12
OUT	T	11
	K	30
LD	T	11
SET	S	2
STL	S	2
RST	Y	11
OUT	Y	13
OUT	T	12
	K	20
LD	T	12
SET	S	0
RET		

♦ The end of STL program area need added RET instruction, let program return to original bus bar.

3 – 3 – 2 : Selective Branch Programming

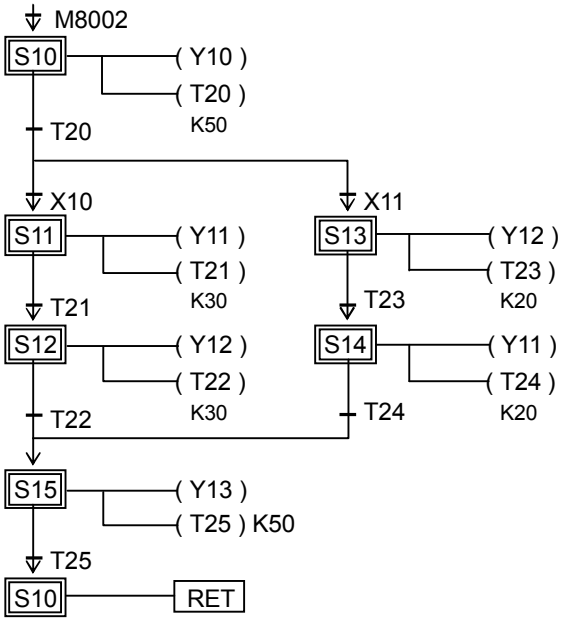


Fig 3-3-2a. Simple Flow Chart - SFC

♦ This type of program construction can created many flow but only one flow can enable, i.e. X10,X11 can't ON at the same time.

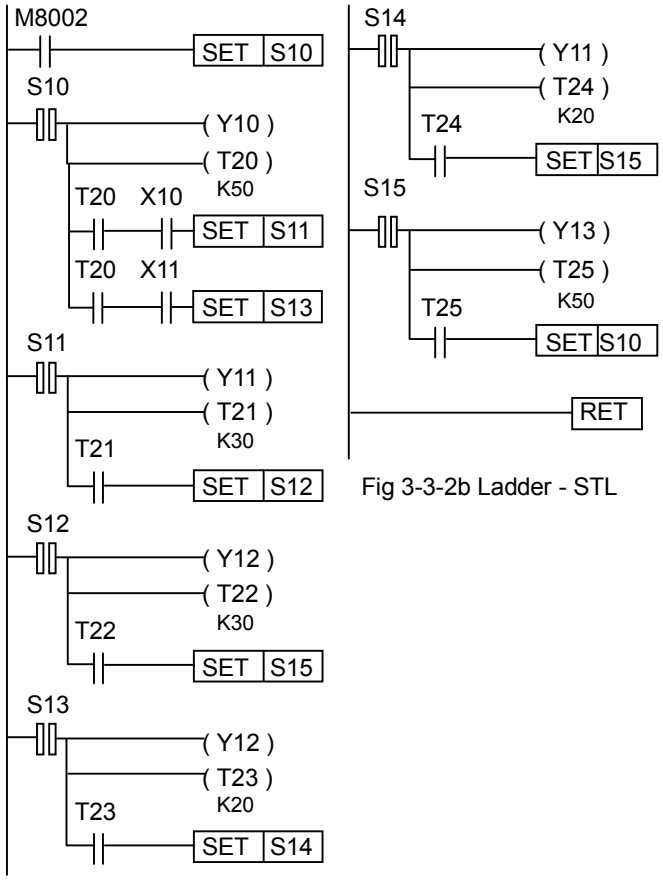


Fig 3-3-2b Ladder - STL

0000	LD	M	8002
0001	SET	S	10
0002	STL	S	10
0003	OUT	Y	10
0004	OUT	T	20
0005		K	50
0006	LD	T	20
0007	AND	X	10
0008	SET	S	11
0009	LD	T	20
0010	AND	X	11
0011	SET	S	13
0012	STL	S	11
0013	OUT	Y	11
0014	OUT	T	21
0015		K	30
0016	LD	T	21
0017	SET	S	12
0018	STL	S	12
0019	OUT	Y	12
0020	OUT	T	22
0021		K	30

0022	LD	T	22
0023	SET	S	15
0024	STL	S	13
0025	OUT	Y	12
0026	OUT	T	23
0027		K	20
0028	LD	T	23
0029	SET	S	14
0030	STL	S	14
0031	OUT	Y	11
0032	OUT	T	24
0033		K	20
0034	LD	T	24
0035	SET	S	15
0036	STL	S	15
0037	OUT	Y	13
0038	OUT	T	25
0039		K	50
0040	LD	T	25
0041	SET	S	10
0042	RET		
0043			

(3-3-2c)

3 – 3 – 3 : Multiple Flows Simultaneously

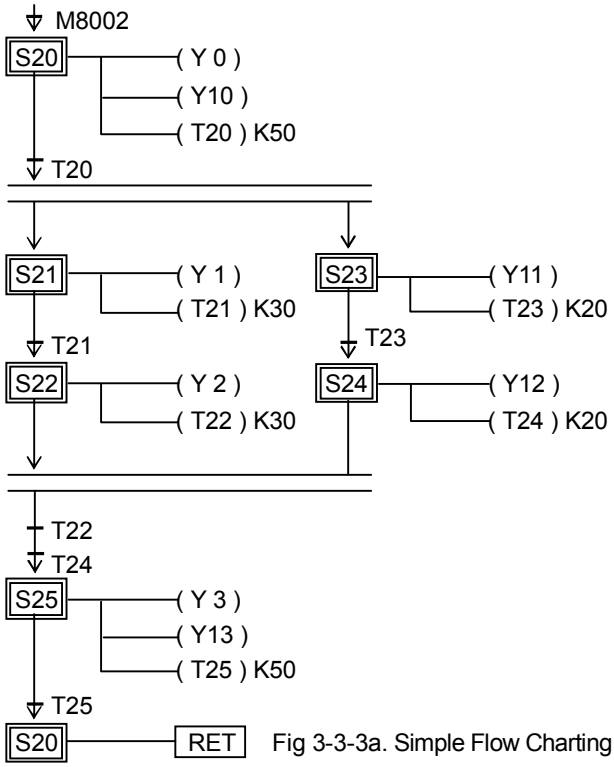


Fig 3-3-3a. Simple Flow Charting

♦ This type of program construction can enable multiple flow at the same time.

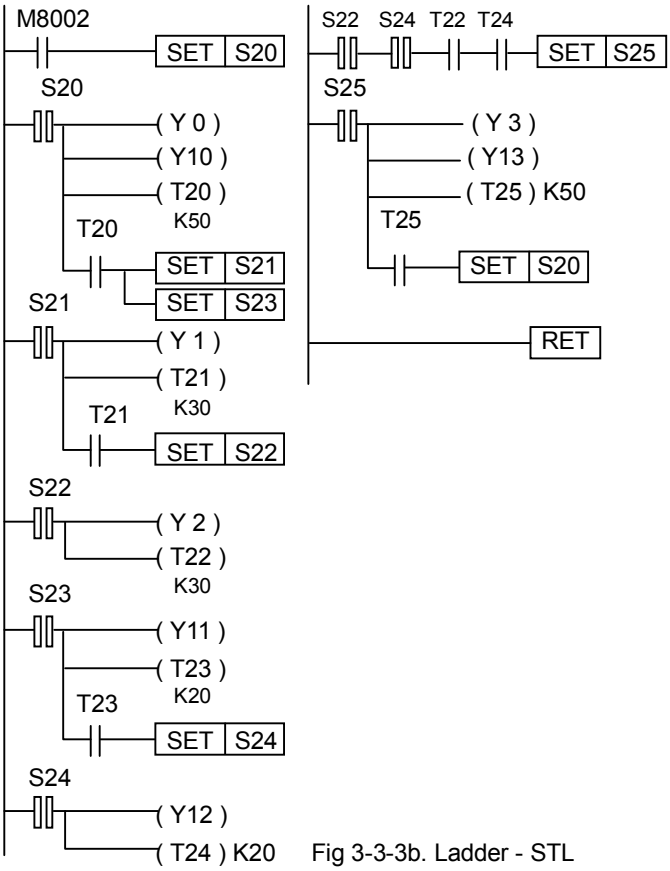


Fig 3-3-3b. Ladder - STL

0000	LD	M	8002
0001	SET	S	20
0002	STL	S	20
0003	OUT	Y	0
0004	OUT	Y	10
0005	OUT	T	20
0006		K	50
0007	LD	T	20
0008	SET	S	21
0009	SET	S	23
0010	STL	S	21
0011	OUT	Y	1
0012	OUT	T	21
0013		K	30
0014	LD	T	21
0015	SET	S	22
0016	STL	S	22
0017	OUT	Y	2
0018	OUT	T	22
0019		K	30
0020	STL	S	23
0021	OUT	Y	11

0022	OUT	T	23
0023		K	20
0024	LD	T	23
0025	SET	S	24
0026	STL	S	24
0027	OUT	Y	12
0028	OUT	T	24
0029		K	20
0030	STL	S	22
0031	STL	S	24
0032	LD	T	22
0033	AND	T	24
0034	SET	S	25
0035	STL	S	25
0036	OUT	Y	3
0037	OUT	Y	13
0038	OUT	T	25
0039		K	50
0040	LD	T	25
0041	SET	S	20
0042	RET		
0043			