SERVO-TOP

QE5542

CE

Type

QA31SE

Instruction Manual

Part 3

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English 2000-07-07

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Part 3

11. Survey and List of Parameters

11.1 Explanation of Parameter Survey

The parameter survey is designed as an aid for finding parameters quickly. It is a summary of references for the parameter list. Listed behind each reference are all parameters which exert an influence on the function described by the reference.

The parameter survey is divided into five columns:
Column 1 shows the references (functions) to which parameters are assigned.
Column 2 shows the abbreviations of the respective functions.
Column 3 shows all parameters (setting numbers) belonging to the respective reference.
Column 4 shows, for each function (reference) which controls inputs or outputs, the applicable indications such as Ex or Ax which can also be found on the connections diagram.
Column 5 shows, for each function (control inputs (Ex) or control outputs (Ax)), the respective plugs with the number of contacts (see connections diagram).

Example for searching a parameter:
Keyword (function): inverse rotation
The parameter survey shows in column 3 the parameter numbers 618, 623, 801.

Suppose that the inverse rotation function is to be enabled. The parameter list shows this function under parameter number 618.

11.2 Explanation of Parameter List

The parameter list is divided into 5 columns. These comprise, in
column 1: the parameter number,
column 2: is the explanation (meaning) of the parameters and the coding system of row 1 of the keys of the mini operator's panel, used when the parameter concerned can be programmed with the mini operator's panel,
column 3: the programming level (A, B, C) on which the parameter in question can be accessed,
column 4: the range of values within which the parameter in question can be set,
column 5: the value of the parameter in question is set on delivery ex factory.

Parameters having "either/or" validity (software switches) can merely be set to value I or II. In the case of such parameters, column 4 is empty.
Parameter numbers in acute brackets; e.g. <105>, mean the value (content) set for the parameter in question.

Example:
107 Speed for front backtack when <106> = I
I limited by <105>
II limited by <607>

Explanation:
Parameter 107 is valid only the the value (content) of parameter <106> = I.
If parameter 107 is set to I (<107> = I), then the speed for the front backtack is limited by parameter 105, e.g. <105> = 1500. If parameter 107 is set to II (<107> = II), then the speed for the front backtack is limited by the value of parameter 607, e.g. <607> = 4000.

11.3 Parameter survey QA31SE (2a_907_3.EN)

Function	Abbrev'n	Parameter	Input Output	Connection Socket/Contacts
Accelerate	DRZAN	722		
Blower	BLA	668		
Brake	DRZAB	723/851		
Catcher	FANG	707		
Chainstitch machine	KES	765		
Control	REG	884/885/886 887/889/890 891/894		
Delay	VERZ	412/623/716 730/765		
Direction of rotation	DRR	800		
Feed reverse	TUM	721	E1 A5	X2:25 X2:11
Flip-Flop	FF	412		
Hardware test	HWT	797		
Inverse rotation	RDR	618/623/714 801		
Machine class	MAKL	799		
Needle position	NAPO	648/654/675 700/701/702 703/704/707 709		
Needle position change-over	NPW	616	E2	X2:24
Needle up without trimming	NHOS	616	E2	X2:24
Presser foot	PF	633/651/719 729/730	E4 A4 A7 A7	X2:22 X2:3 X1:1 X2:4
Program	PR	851		
Programming level C	EBC	798		
Residual brake	STBR	718		
Safety switch no run	ANLSP	613		
Seam end	NE	558/602		

Soft start	SANL	116/117		
Speed	DRZ	117/412/585 586/587/591 605/606/607 608/609/676 850		
Speed decrease	DRZAB	723/851		
Speed increase	DRZAN	722		
Speed limitation	DB	585/586/587 591	E13	X2:18
Start	START	603		
Start delay	STVERZ	729		
Stroke adjustment	HV	401		
Thread tension release	FSL	636/707/749	A11	X2:9
Thread trimming	SN	558/601/609 633/654/704 709/714/734 765	A1 A1 A2	X2:1 X1:2 X2:7
Thread wiper	WI	668/715/716	A3	X2:6
Time needed to switch on	EINZ	714/715/749 889		
Timing output	TA	719/721/734		

11.4 List of Parameters QA31SE (2a_907_3.EN)

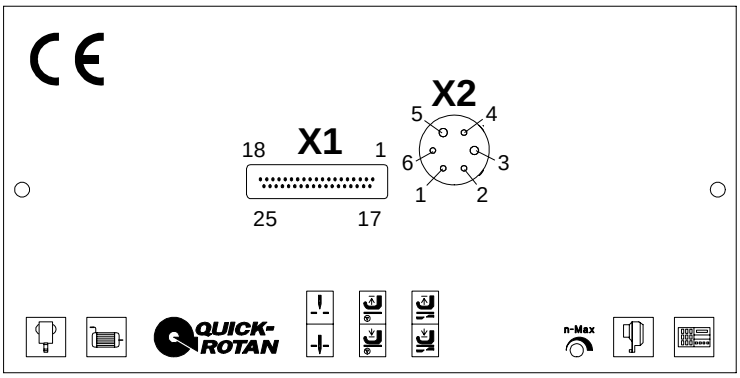
No.	Function (Meaning)	Level	Range of Values	Standard Value
116	(SANL) Soft start stitches (11100000)	A,B	0-255	0
117	(SANL/DRZ) Speed for soft start stitches (00010000)	B	30-640	500
401	(HV) Input „stroke adjustment“ I switch operation II push-button operation	B		II
412	(DRZ/FF/VERZ) Speed at flip-flop on (<402> overrules when <412> > <402>)	B	300-6400	2000
558	(NE/SN) Seam end (special case) I at treadle „-1“ -> NHOS at treadle „-2“ -> PF II standard	B		II
585	(DRZ/DB) Speed limitation	B	300-6400	500
586	(DRZ/DB) Speed limitation	B	300-6400	700
587	(DRZ/DB) Speed limitation	B	300-6400	1000
591	(DRZ/DB) Speed limitation via push-button I yes II no	B		II
601	(SN) Trimming I yes II no (00001000)	B		I
602	(NE) Seam end at treadle position I slightly heeled (-1) II fully heeled (-2)	B		II
603	(START) Start after seam end I after treadle 0 only II immediate start of operation	B		I
605	(DRZ) Actual speed in display I yes II no	B		II
606	(DRZ) Speed: level 1 (min.) (10001000)	B	30-640	150
607	(DRZ) Speed: level 12 (max.) (01001000)	B	100-10000	1500
608	(DRZ) Speed level curve (treadle characteristic) I linear II not linear	B		I
609	(SN/DRZ) Trimming speed 1 (11001000)	B	30-300	200
613	(ANLSP) Run locking/stop I contact towards „zero“ II contact towards „plus“	B		I

616	(NPW/NHOS) Function of external key (input E2) I needle position change-over (NPW) II needle up without trimming (NHOS)	B		I	
618	(RDR) Inverse rotation after seam end I yes II no (00101000)	B		II -	Kl. 1 Kl. 2
623	(RDR/VERZ) Delay in start-up time (ms) for inverse rotation	B	0-2550	10 -	Kl. 1 Kl. 2
633	(SN/PF) Trimming and presser foot I with treadle „-2“ only (<602> = II) II corresponding to <602>	B		II	
636	(FSL) Thread tension release I yes II no	B		II	
648	(NAPO) Needle positions I one II two	B		II -	Kl. 2 Kl. 1
651	(PF) Presser foot with automatic descent on machine stop I yes II no	B		I	
654	(SN/NAPO) Positioning before thread trimming I yes II no	B		II -	Kl. 1 Kl. 2
668	(BLA/WI) Thread wiper/thread clearer I yes II no (10101000)	B		I	
675	(NAPO) Automatic needle change-over into position 2 (up) after enabling I yes II no	B		II -	Kl. 2 Kl. 1
676	(DRZ) Speed adjustment via potentiometer possible I yes II no	B		II	
700	(NAPO) Needle position 0 (reference position of the needle) (01101000)	B	0-239	0 *	
701	(NAPO) Angular adjustment I with handwheel (teach-in) II by keys (+/-)	B		I	
702	(NAPO) Needle position 1 (needle down) (11101000)	B	0-239	71 75	Kl. 1 Kl. 2
703	(NAPO) Needle position 2 (thread take-up lever up) (00011000)	B	0-239	211 203	Kl. 1 Kl. 2
704	(NAPO/SN) Needle position 4 (start trimming signal 1) (10011000)	B	0-239	100 -	Kl. 1 Kl. 2

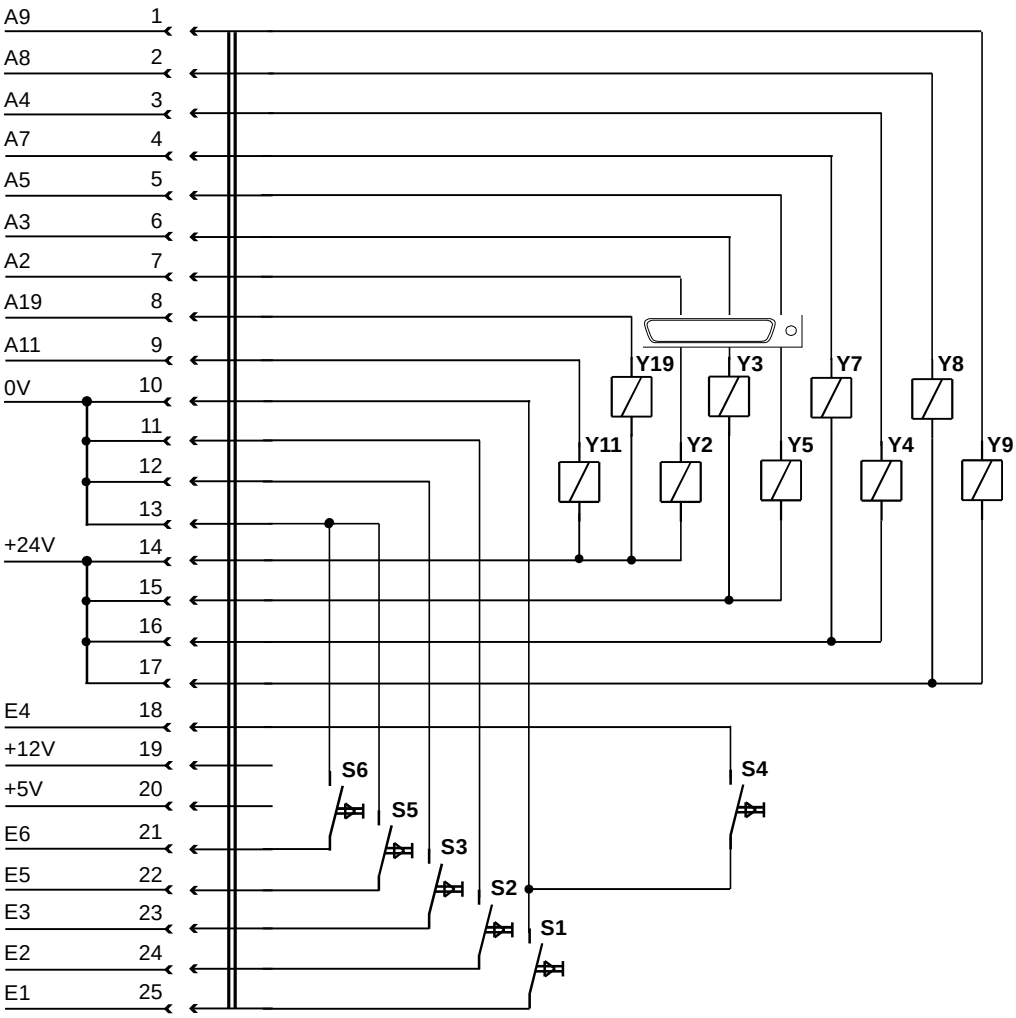
707	(NAPO/FSL/FANG) Needle position 9 (thread tension release or thread catcher start) (01011000)	B	0-239	150 - 	Kl. 1 Kl. 2
709	(NAPO/SN) Needle position 7 (end of trimming signal 2) (11011000)	B	0-239	175 - 	Kl. 1 Kl. 2
714	(EINZ/SN/RDR) Duration (ms) for chainstitch trimming or inverse rotation	B	0-2550	100 -	Kl. 2 Kl. 1
715	(EINZ/WI) Duration (ms) of thread wiper	B	0-2550	50 100	Kl. 1 Kl. 2
716	(VERZ/WI) Delay in start-up time (ms) for thread wiper	B	0-2550	100 -	Kl. 2 Kl. 1
718	(STBR) Timing of residual brake (0 = brake off) (00111000)	B	0-100	0	
719	(PF/TA) Timing output A4 (0 = 100% switching on)	B	0-100	40	
721	(TUM/TA) Timing output A5 (0 = 100% switching on)	B	0-100	40	
722	(DRZAN) Acceleration ramp 1 gradual 50 steep	B	1-50	40	
723	(DRZAB) Brake ramp 1 gradual 50 steep	B	1-50	31	
729	(STVERZ/PF) Start delay after lowering presser foot	B	0-2550	50	
730	(PF/VERZ) Lift delay for presser foot after seam end	B	0-2550	40	
734	(SN/TA) Timing output A2	B	0-90	10	
749	(EINZ/FSL) Duration (ms) of thread tension release	B	0-2550	0 100	Kl. 1 Kl. 2
765	(SN/KES/VERZ) Delay in start-up time (ms) for chainstitch trimming	B	0-2550	20 -	Kl. 2 Kl. 1
797	(HWT) Hardware test	B		II	
798	(EBC) Programming level C I yes II no	B		II	
799	(MAKL) Machine class which has been selected (10111000)	B	1-2	1 2	Kl. 1 Kl. 2
800	(DRR) Direction of motor rotation viewed from belt pulley I left-hand rotation II right-hand rotation (01111000)	B		II *	
801	(RDR) Reverse rotation angle after seam end	B	5-200	30	
850	(DRZ) Maximum motor speed	C	2000-6000	4500	
851	(PR/DRZAB) Brake ramp for stitch-count seams I steep II gradual	C		I	
884	(REG) Proportional amplification of the speed control (in general)	B	4-50	12	

885	(REG) Integral amplification of the speed control	C	0-100	30
886	(REG) Proportional amplification of the order controllers	C	1-50	20
887	(REG) Differential amplification of the order controllers	C	1-100	30
889	(EINZ/REG) Time required for order controlling (0 = always)	C	0-1000	400
890	(REG) Proportional amplification of the superior order controllers for the residual brake	C	1-50	25
891	(REG) Proportional amplification of the lower speed controllers for the residual brake	C	1-50	20
894	(REG) Rotational direction of motor and synchronizer I different II same	C		I
897	(SONST) Commutation transmitter I ABB II QR	C		II
898	(SONST) Number of motor poles I 4 poles II 6 poles	C		II

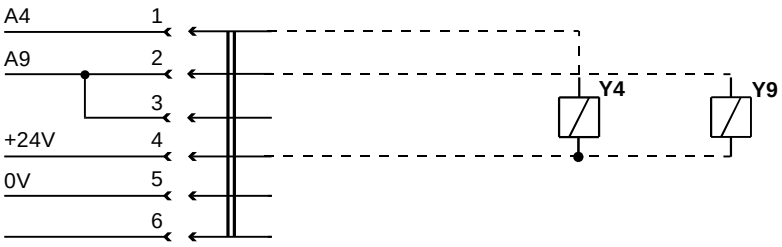
12. Electrical Connections Diagram QA31SE



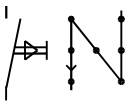
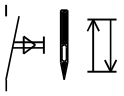
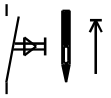
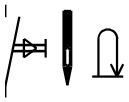
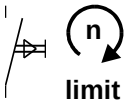
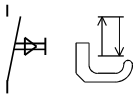
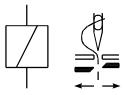
X1



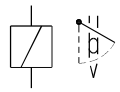
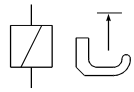
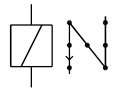
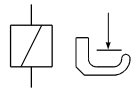
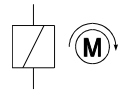
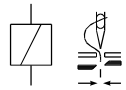
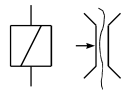
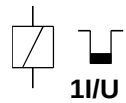
X2



Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys
Signification des aimants resp. solenoides et touches / Significato dei magneti, delle valvole magnetiche e dei tasti
Significación de los imanes y/o los solenoides y pulsadores / Significação dos imaõs e/ou as solenoidas e teclas /
Betekenis van de magneten resp. magneetkleppen, toetsen

S1		Transportumstellung von Hand / manual feed reverse / renversement de marche manuel / mudança do transporte manual / commutazione trasporto a mano / inversión de transporte manual / handmatige transportomschakeling
S2		<616> = I: Nadelpositionswechsel / needle position change-over / changement de position d´aiguille / troça de posição da agulha / cambio di posizione dell´ago / cambio de posición de aguja / naaldpositie-verwisseling
S2		<616> = II: Nadel hoch ohne Schneiden / needle up without thread trimming / aiguille en haut sans coupe / agulha para cima sem corte de linhas / ago su senza taglio / aguja arriba sin corte / naald omhoog zonder snijden
S3		Einzelstich / single stitch / point unique / ponto único / punto ùnico / puntada única / enkele steek
S4		Drehzahlbegrenzung / speed limitation / limitation de vitesse / limitação das rotações / limitazione velocità / limitación de velocidad / beperking van het toerental n = <412>
S5		Presserfuß / presser foot / pied presseur / calcador / alzapiedino / prensatelas / drukvoet
S6		STOP <613>
Y2 I max 8 A		Fadenschneider rückwärts / thread trimmer backward / coupe-fil en marche arrière / corte de linhas para trás / rasafilo indietro / cortahilos en marcha inverso / draadsnijder achteruit

Bedeutung der Magnete bzw. Magnetventile, Taster / Meaning of magnets and/or solenoids and keys
Signification des aimants resp. solenoides et touches / Significação dos imaõs e/ou as solenoidas e teclas
Significato dei magneti, delle valvole magnetiche e dei tasti / Significación de los imanes y/o los solenoides y pulsadores / Betekenis van de magneten resp. magneetkleppen, toetsen

Y3 I max 8 A 	Fadenwischer / thread wiper / écarteur de fil / retira-linhas / scartafilo / retirahilos / draadwisser
Y4 I max 8 A 	Presserfuß heben / presser foot up / pied presseur en haut / calcador em cima/ alzapiedino su / prensatelas arriba / drukvoet optillen
Y5 I max 8 A 	Transportumsteller / feed reverse / renversement de marche / mudança do transporte / commutazione trasporto / inversión de transporte / transportomschakeling
Y7 I max 8 A 	Presserfuß senken / presser foot down / pied presseur en bas / calcador em baixo / alzapiedino giù / prensatelas abajo / drukvoet laten zakken
Y8 I max 8 A 	Motor läuft / motor runs / moteur en marche / motor em movimento / motore in moto / motor en marcha / loop van de machine
Y9 I max 8 A 	Fadenschneider vorwärts / thread trimmer forward / coupe-fil en marche avant/ corte de linhas para a frente / rasafilo avanti / cortahilos en marcha adelante / draadsnijder vooruit
Y11 I max 8 A 	Fadenentspanner / thread tension release / détendeur de fil / detenção do filho / sbloccaggio tendifilo / detensión del hilo / verbreken van de draadspanning
Y19 I max 100 mA  **1I/U**	Zählsignal / count signal / signal de comptage / sinal de contagem / signale conteggio / señal del contador / telsignaal

* Die Summe der Lastströme aller gleichzeitig eingeschalteten Stellglieder (Magnete, Magnetventile) darf den Wert von 4A nicht überschreiten (siehe hierzu Kapitel 2. Technische Daten).

The total of load currents of all servos activated simultaneously (solenoids, solenoid valves) is not allowed to exceed 4 amps (see also section 2, Technical Specifications).

Le total des courants de charge de tous les vérins (aimants, électro-vannes) activés simultanément ne doit pas dépasser 4 A (voir aussi le chapitre 2, "caractéristiques techniques")

A soma das correntes sob carga de todos os actuadores ligados ao mesmo tempo (ímans, solenóides) não pode ultrapassar o valor de 4A (ver também capítulo 2, Dados Técnicos).

La somma delle correnti di carico di tutti gli attuatori inseriti contemporaneamente (magneti, elettrovalvole) non deve essere superiore a 4 A (vedere il capitolo 2 dati tecnici).

La suma de las corrientes bajo carga de todos los elementos de todos los componentes de regulación conectados simultáneamente (imanes, válvula magnética) no podrá sobrepasar el valor de 4A (véase también el capítulo 2. de datos técnicos).

De belastingsstroom van alle tegelijkertijd ingeschakelde bedieningsschakels (magneten, magneetventielen) mag in totaal niet meer dan 4 A bedragen (zie hiervoor hoofdstuk 2. Technische gegevens)

13. Maintenance and Repair

!! Before starting maintenance or repair work, switch off the SERVO-TOP,
separate the drive system from mains power (for instance by pulling out the mains plug)
and wait for the motor to come to a complete stop.

General maintenance work must only be done by specially trained personnel paying close attention to the operating instructions.

The SERVO-TOP ist largely maintenance-free.
However, make sure to perform the following maintenance work:

Depending on the operating conditions, clean the drive system regularly, at least once a week, from any dust or lint. Make sure in particular that the ventilation louvres and cooling fins of the motor, especially the cooling fins between the motor and the control box, are perfectly clean (Fig. 13).

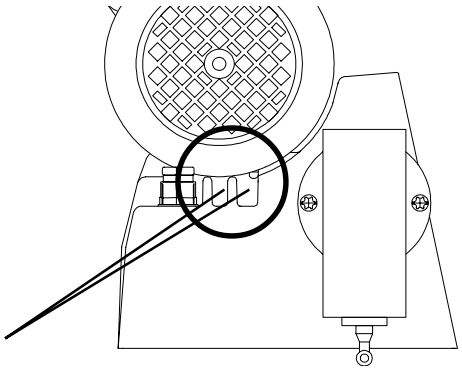


Fig. 13

Remove any threads caught on the synchronizer shaft or on the belt pulley and/or motor shaft.

Check if the drive system is perfectly secured to the stand and that the accessories (synchronizer on machine shaft, speed control unit on control box) are safely mounted in their respective positions.

Check the drive belt for any wear and for correct tension.
Incorrect belt tension can increase noise and vibrations.

When opening covers or removing parts, apart from those removable by hand,
live elements can be exposed.
Connections can also be electrically live.

If you require to open the drive system before starting maintenance or repair work or before replacing any parts, disconnect the drive system from any and all power sources.

If maintenance or repair work on the open unit is unavoidable, this may only be done by qualified personnel familiar with the risks involved. Observe all regulations as per EN 50110.

There can still be capacitors carrying a charge in the power electronics system, even when the drive system has been disconnected from all power sources. To avoid injury by electrical shock, it is therefore essential to wait at least 10 minutes between mains power shutoff and opening the control box.

In order to protect semi-conductor components from overvoltage, use only high-resistivity measuring equipment when making checks on the control system.

Any repair or servicing work requiring skilled knowhow may only be done by qualified personnel authorized by Quick-Rotan.

We emphasize that in accordance with the product liability law we are under no responsibility for damages caused by our products if these are due to

- unqualified repair
- the use of components not authorized by us
- actions made by any persons not authorized by us.