0502***20130130155031406

Delivery notice (A) 조정구 5102017135

Issuing date: 2013.01.30

Sales Order No	Notice No.	Material No.	Serial No.	Issuer	Checked
201132130	1301000774	P26MSB-F0TD-0-U10 PUMA 2600MSB	ML0223-000029	사원4갑 김동현	차장 장우진
Ex-factory	2013.02.28	Approval date	2013.01.25	Act.ex-factory	0000.00.00
Destination	DOOSAN INFRACORE AMERICA CORPORATIO		Tel.	+17708312225	
	USA / 2905 SHAWNEE INDUSTRIAL WAY, SUITE / SUWANEE, GA.				

Remarks	[저발열볼스크류적용장비] 4" part catcher 적용 OK	Location	1141/0AJS

[Manual details]

G	M/C Part	Manual Code	Q'ty	Yes	Lan	CNC Part	Manual Code	Q'ty	Yes	Lan.
Std	HW	P21SYH31AC02	1	OK	ENG	EZ GUIDE i V6.4	B-63874EN/07	1	OK	ENG
Std	SW	P21SYS0IDC06	1	OK	ENG	NC MAINTENANCE	B-64305EN/01	1		ENG
Std	DTMS	DTMT_EN	1	OK	ENG	NC OP MANUAL	B-64304EN-1/01	1		ENG
Std	NC PROGRAM_DI	NCLTAPR083	1		ENG	NC PARAMETER	B-64310EN/01	1		ENG
Std	INSTRUCTION	P2100INE12	1		ENG					
Std	OP MANUAL	P210SY0PE3014	1		ENG					
Std	PART LIST	P26MSBPLE23	1		ENG					
Std	PS MANUAL	TURNPTPSE0C	1		ENG					

[Optional accessories]

NO	Item No	Description	Spec	Unit	Q'ty	SC	Attached	Check Yes	Check No
0010	P26MSB-F0TD-0-U10	P26MSB/F0ITD STD FOR AMERICA		EA	1	D		✓	
0020	SQ100	4" part catcher capacity		SET	1			✓	

Delivery notice (B) Machine Specification

Issuing date: 2013.01.30

Sales Order No	Notice No.	M/C Code	Serial No.	Issuer	Checked
0201132130	1301000774	P26MSB-F0TD-0-U10 PUMA 2600MSB	ML0223-000029	사원4갑 김동현 2013.01.25	차장 장우진 2013.01.25
Ex-factory*	2013.02.25	Approval date	2013.01.25	Act.ex-factory	0000.00.00

[CV List : Foundation and others]

No	Characteristic	Value	Check	No	Characteristic	Value	Check
0001	ML0104F0TD-474ZA000(01392)	F0ITD_AP40_10.4C_MGI_A_00	ok	0002	REGULATION		
0003	SYSTEM UNIT SETTING	INCH	ok	0004	POWER SOURCE	3 PH_AC220V_60HZ	ok
0005	NC SYSTEM	FANUC 0I-TD	ok	0006	DISPLAY UNIT SIZE	10.4 COLOR	ok
0007	FEEDBACK SYSTEM	ABSOLUTE	ok	0008	CUSTOMER MANUAL_MACHINE	ENGLISH	
0009	CUSTOMER MANUAL_NC	ENGLISH		0010	ADD CUSTOMER MANUAL_MACHINE		
0011	ADD MANUAL_MACHINE_QTY			0012	ADD CUSTOMER MANUAL_NC		
0013	ADD MANUAL_NC_QTY			0014	DISPLAY UNIT LANGUAGE	ENGLISH	ok
0015	NAME PLATE	ENGLISH	ok	0016	MAX. MAIN SPINDLE SPEED	2800 R/MIN	ok
0017	MAIN SPINDLE MOTOR POWER	AP40/6000_22/18.5 KW	ok	0018	MILLING SPINDLE MOTOR POWER	A2/10000_5.5/1.5 KW 3.7/1.2	ok
0019	MAIN/LEFT CHUCK SIZE	305 MM (12 INCH)	ok	0020	SUB/RIGHT CHUCK SIZE	210 MM (8 INCH)	ok
0021	SOFT JAWS			0022	HARDENED & GROUND HARD JAWS		
0023	NUMBER OF TOOL ST. FOR MAIN	12 ST_BMT65P	ok	0024	DRILL SOCKET		
0025	ROTARY TOOL COOLANT TYPE	FLOOD COOLANT (NORMAL)	ok	0026	ROTARY TOOL COLLET TYPE & SIZE		
0027	LINEAR SCALE (X AXIS)			0028	LINEAR SCALE (Z AXIS)		
0029	DUAL PRESSURE CHUCKING	NONE(SINGLE PRESSURE CHUCKING)	ok	0030	COOLANT TANK DIRECTION	RIGHT SIDE	ok
0031	COOLANT PUMP FOR MAIN TURRET	0.9 KW_0.45 MPA_30 L/MIN 4m6.3A		0032	TSC FOR MAIN/LEFT SPINDLE		
0033	TSC FOR SUB/RIGHT SPINDLE	WORKPIECE EJECTOR_COOLANT	ok	0034	OIL SKIMMER	BELT TYPE W/M150	
0035	COOLANT LEVEL SWITCH			0036	COOLANT PRESSURE SWITCH		
0037	CHUCK COOLANT			0038	COOLANT GUN		
0039	AIR BLOWER FOR CHUCK	MAIN AND SUB SPINDLE	ok	0040	AIR GUN		
0041	AUTOMATIC FRONT DOOR			0042	CHIP CONVEYOR TYPE		
0043	CHIP BUCKET TYPE			0044	MACHINE LEVEL INSPECTION PLATE		
0045	MACHINE LIFTING HOOKS	MACHINE LIFTING HOOKS	ok	0046	MIST COLLECTOR		
0047	PARTS CATCHER	CONVEYOR TYPE_MAIN/LEFT SPD	ok	0048	TOOL SETTER	AUTOMATIC_ELECTRIC	ok
0049	WORKPIECE EJECTOR	WORKPIECE EJECTOR	ok	0050	CHUCK CLAMP CONFIRMATION	CHUCK CLAMP CONFIRMATION	ok
0051	BAR FEEDER INTERFACE	BAR FEEDER INTERFACE	ok	0052	ELECTRIC POWER TRANSFORMER		
0053	AIR CONDITIONER			0054	ELECTRIC CABINET LIGHT		
0055	ELECTRIC LINE FILTER			0056	WORK & TOOL COUNTER		
0057	EXTRA M CODE			0058	AUTOMATIC POWER OFF		
0059	ROBOT INTERFACE			0060	SHUNT TRIP COIL		
0061	DOOSAN TOOL MONITORING SYSTEM	DOOSAN TOOL MONITORING SYSTEM	ok	0062	HIGH COOLANT INTERFACE	COOLJET INTERFACE W/M0KR0	ok
0063	ADDITIONAL MPG			0064	SIGNAL TOWER	3 COLOR_(RED.YELLOW.GREEN)	ok
0065	WORKPIECE CUT OFF CONFIRMATION			0066	FLASH MEMORY CARD & ADAPTER		
0067	LIFTING FUNCTION AGAINST G			0068	LINEAR B-AXIS PMC CONTROL		
0069	ROTARY TOOL ORIENTATION			0070	NUMBER OF TOOL OFFSETS	128 PAIRS	ok
0071	ETHERNET FUNCTION	EMBEDDED ETHERNET	ok	0072	HELICAL INTERPOLATION		
0073	STORED PITCH ERROR COMPENSA.						

MACHINE : PUMA 2600MSB

SERIAL NO. : ML0223-000029

DATE : Feb. 23. 2013

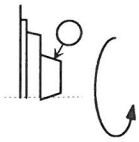
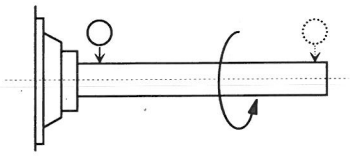
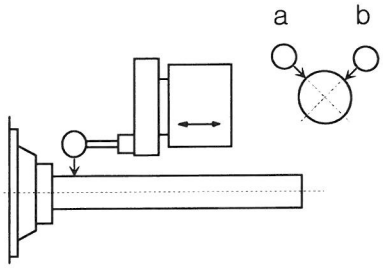
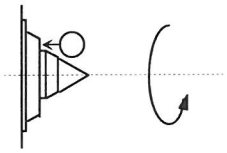
TURNING CENTER TEST RECORD

DOOSAN

CHANGWON, KOREA

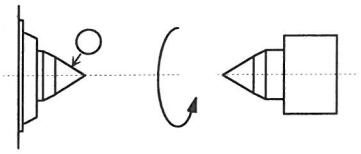
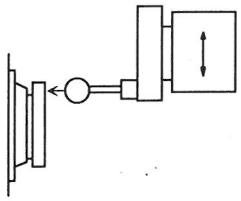
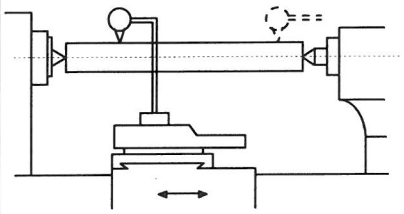
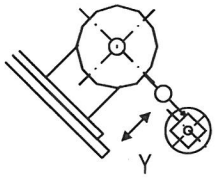
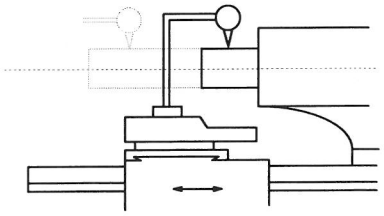
GEOMETRICAL TEST RECORD

SIZE	780 × 830	MACHINE NO.	ML0223-000029

NO.	ITEM		ILLUSTRATION	PERMISSIBLE ERROR SWING ⇩ UP TO 500	PERMISSIBLE ERROR SWING ⇩ UP TO 1000	READING
1	SPINDLE NOSE RUNOUT			0.005 (0.0002)	0.005 (0.0002)	Main PASSED Sub. PASSED
2	SPINDLE HOLE RUNOUT			0.005 (0.0002)	0.005 (0.0002)	Main PASSED Sub. PASSED
				AT END OF SPINDLE NOSE		
				0.01 (0.0004)	0.015 (0.0006)	Main PASSED Sub. PASSED
				AT END OF 200 TEST BAR		
3	PARALLELISM OF SPINDLE WITH CARRIAGE MOVEMENT	A. IN VERTICAL PLANE		0.01 (0.0004)	0.02 (0.0008)	Main PASSED Sub. PASSED
				IN 200(8") HIGH AT FREE END OF TEST BAR		
		B. IN HORIZONTAL PLANE PLANE		0.01 (0.0004)	0.01 (0.0004)	Main PASSED Sub. PASSED
				IN 200(8") FORWARD AT FREE END OF TEST BAR		
4	CAM ACTION OF SPINDLE FLANGE			0.01 (0.0004)	0.01 (0.0004)	Main PASSED Sub. PASSED

DOOSAN

GEOMETRICAL TEST RECORD

NO.	ITEM	ILLUSTRATION	PERMISSIBLE ERROR SWING UP TO 500	PERMISSIBLE ERROR SWING UP TO 1000	READING
5	SPINDLE CENTER RUNOUT		0.007 (0.0003)	0.01 (0.0004)	Main PASSED Sub.OR T/S PASSED
6	SQUARENESS OF CROSS SLIDE MOVEMENT WITH SPINDLE		0.01 (0.0004)	0.015 (0.0006) IN 200(8") TO CONCAVE FACE ONLY	PASSED
7	VERTICAL ALIGNMENT OF HEAD-STOCK CENTER WITH TAIL-STOCK CENTER		0.01~0.03 (0.0004 ~0.0012)	0.01~0.03 (0.0004 ~ 0.0012) HIGH AT TAIL-STOCK	-
8	Perpendicularity between Y-AXIS motion and X-AXIS traverse		100에 대해 0.025		-
9	PARALLELISM OF CARRIAGE MOVEMENT WITH TAIL-STOCK SPINDLE		0.01 (0.0004)	0.02 (0.0008) IN 150(6") HIGH AT FREE END OF TEST BAR	-
			0.007 (0.0003)	0.01 (0.0004) IN 150(6") FORWARD AT FREE END OF TEST BAR	-

DATE : ***Feb. 23. 2013***

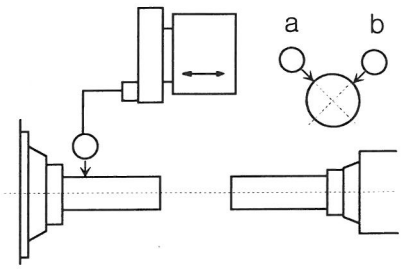
INSPECTED BY : J. K. Jo

APPROVED BY : ***J. W. Kwon***

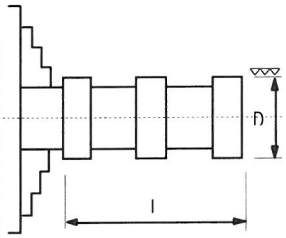
DOOSAN

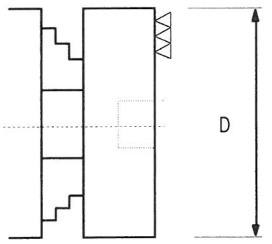
( ) inch

GEOMETRICAL TEST RECORD

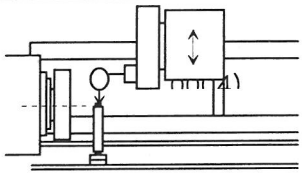
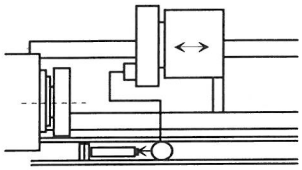
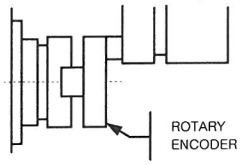
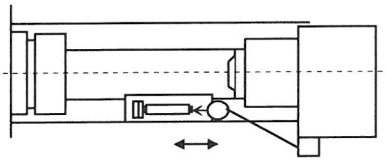
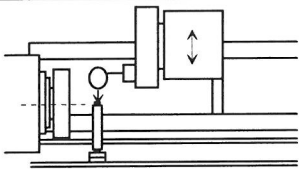
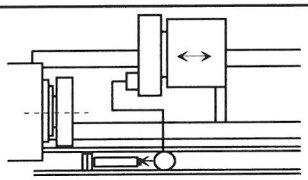
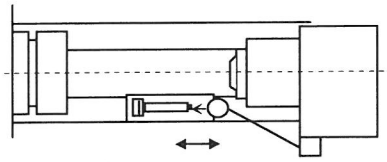
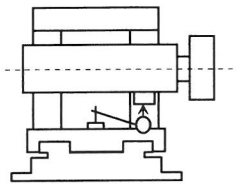
NO.	ITEM	ILLUSTRATION	PERMISSIBLE ERROR SWING UP TO 500	PERMISSIBLE ERROR SWING UP TO 1000	READING
10	CENTER HEIGHT DEVIATIONS BETWEEN MAIN and SUB. SPD.		±0.01		Ver. PASSED Hor. PASSED

PRACTICAL TEST RECORD

NO.	ITEM	ILLUSTRATION	APPROX. DIMENSION OF WORKPIECE SWING	D	L	PERMISSIBLE ERROR ROUND-NESS	CYLINDRI-CAL SHAPE	READING MM
1	ACCURACY OF BAR CUTTING		500(20") TO 750(30") INCL.	120 (4.8")	225 (9")	0.005 (0.0002)	0.01 (0.0004)	ROUNDNESS PASSED
			750(30") TO 1,000(40") INCL	160 (6.4")	300 (12")	0.014 (0.00055)	0.020 (0.0008)	CYLINDRICAL SHAPE PASSED

NO.	ITEM	ILLUSTRATION	SWING	D	FLATNESS	READING
2	ACCURACY OF FACE CUTTING		500(20") TO 750(30") INCL.	300 (12")	0.02 (0.0008) PER DIA	FLATNESS PASSED
			750(20") TO 1,000(40") INCL.	400 (16")	0.02 (0.0008) PER DIA	

POSITIONING ACCURACY TEST

NO.	ITEM			DRAWING	TOLERANCE	RESULT
1	Positioning accuracy	X - axis			0.01 (0.0004) IN 100(4")	PASSED
		Z - axis			0.02 (0.0008) IN 300(12")	PASSED
		C - axis	C_1		60" (0.0167 deg)	PASSED
			C_2			PASSED
		B - axis			0.05 (0.0020) IN 300(12")	PASSED
2	Repeated positioning accuracy	X - axis			±0.002 (1/2 max. difference)	PASSED
		Z - axis			±0.003 (1/2 max. difference)	PASSED
		C - axis	C_1	※ ROTARY ENCODER	20" (±0.006 deg)	PASSED
			C_2			PASSED
		B - axis			±0.003 (1/2 max. difference)	PASSED
		Y축			±0.003 (1/2 max. difference)	-

PUMA-NF-MS(2PATH)	NC PARAMETER	NC UNIT	FS0iD/31/32iA

MACHINE	MODEL	SERIAL NO.
	PUMA 2600MSB	29

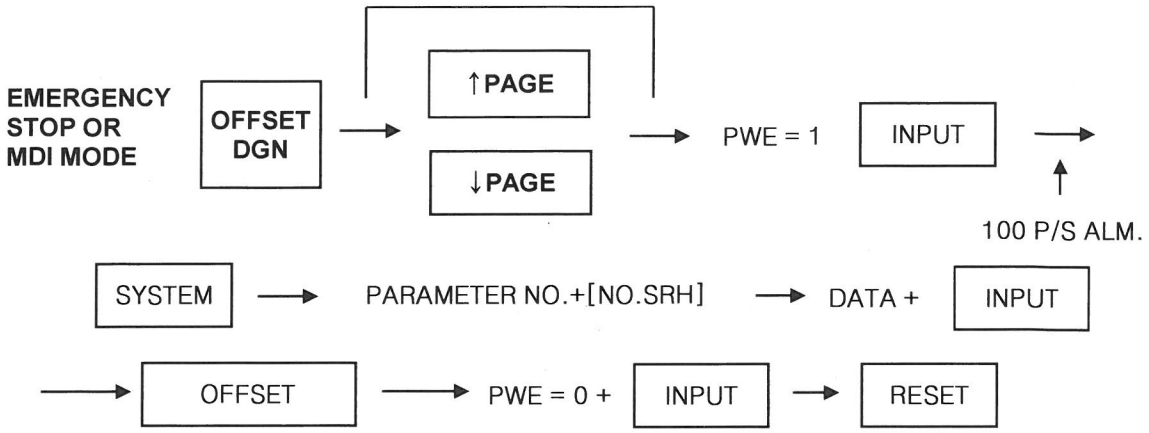
CUSTOMER
DIA

생 산 팀	확인	이 명수
품질관리팀	확인	조 정제.

EDITION	DATE
P21MSP31AA24	2013.01.25

작 성	승 인
장용익 (2013.01.25)	홍성달 (2013.01.25)

1. KEY BOARD OPERATION(KEY BOARD 조작)



2. 설정 방법(SETTING METHOD)

☞ : 스핀들 모터 파라메터를 자동 설정할 경우**(SPINDLE MOTOR PARAMETER AUTOMATIC SETTING),**
① 스핀들 모터 모델 코드 설정 - 파라메타 **NO.4133S1-1st SPINDLE, S2-2nd SPINDLE.**

② 파라메터 **NO.4019S1-1st SPINDLE, S2-2nd SPINDLE**의 **7**번 비트를 **"1"**로 한 후
전원 **ON/OFF**
Set the spindle motor model code in parameter No.4113S1(1st spindle),S2(2nd Spindle)
and set the bit No.7 of Parameter No.4019S1(1st Spindle),S2(2nd Spindle) to 1.
Then, briefly turn the CNC power off, then on again.
Then , series spindle parameters are automatically initialized.

☞ : 서보 모터 파라메터를 자동 설정할 경우**(SERVO MOTOR PARAMETER AUTOMATIC SETTING),**
① 서보 모터 모델 코드 설정 - 파라메타 **NO.2020**

② 파라메터 **NO.2000**의 **1**번 비트를 **"0"**으로 한 후 전원 **OFF/ON**

Set the servo motor model code in parameter No.2020 and set the bit No.1 of Parameter No.2000 to 0.
Then, briefly turn the CNC power off, then on again.
Then, servo parameters are automatically initialized.

: 기계를 조정하며 설정할 경우,
(When parameter is Set with tuning the machine.)

% : 특별 시방**(OPTION)**이 적용될 경우,
(This value is set when the optional function is used. refer to NC operator manual)

$: 사용자의 사양으로 조정하여 설정할 경우,
(User set these value in adjustment)

PUMA-NF-MS(2PATH)	PARAMETER MODIFICATION RECORD	NC UNIT	FS0iD/31/32iA

EDITION NO.	DATE (일자)	REVISED CONTENTS (수정 내용)	ENGIN'R (담당)	CHECKED (확인)
A00	10.03.25	1. New Frame 기종 Proto 적용에 따른 신규 Parameter sheet 작성	김나라	박휘근
A01	10.05.18	1.TORQUE CONTROL(G300/G350) 관련 파라메타 수정 1) N03412 : 303 2) N03413 : 326 3) N06001 #0 : 1 4) D1300, D1700, D1750 추가 2.M89, M189 (Main, Sub spindle clamp) 관련 파라메타 수정 1) N6076=289 2) N6077=389 3. 0iD 2계통 화면 설정 파라메터 수정 1) N3193 #2 : 1 4. 축번호 설정 파라메터 수정 1) N3131 X1,Z1,C1,B1,C2 : 32(Blank) 5. 기종 추가 6. 적용시기 : 2010년 7월 생산분부터	김나라	박휘근
A02	10.10.01	1. Rigid tapping 관련 Position gain 값 수정 1) N4065 : 2500 → 1000, N4067 : 1000→2500 2. Softkey 에 특수문자를 보여주도록 설정(Small key 의 C-EXT 대응임) 1) N13115 #4,#5,#6 : 0 → 1 3. Q-setter measure time over delay 시간 수정 1) T78 : 60000 → 20000 4. 간섭영역 설정값 수정(2600S,MS,SY)	장용익	박휘근

	변경전 값	변경 후 값		변경전 값	변경 후 값
			D2004	370000	850000
06932	-150.0	-10.0	D2008	400000	850000
06933	-40.0	110.0	D2012	537000	1200000
06934	-20.0	272.0	D2016	794000	1300000
06952	-200.0	-197.0			
06953	-150.0	-20.0			
06954	-40.0	110.0			

5. 누락 Keep relay 추가
1) K10.6(KMILLS) 항목 추가(Mills market의 Door interlock 기능 사용 유무)
6. 적용시기 : 2010년 10월 생산분부터(9월 출하 미적용 호기 반영 요망)

A03	10.10.06	1. Rigid tapping 평면선택을 고정하도록 설정함. 1) N5209 #0 : 0 → 1 G84 Z축, G88 X축으로 고정 2. P2100MS aP22/6000i Spindle 적용 3. 적용시기 : 2010년 10월 생산분부터	최상원	박휘근
A04	10.10.31	1. Ezl Guide I 관련 파라메타 수정 1) 헤드 선택 신호에 따른 화면절환(1-Path 일 때) N.27400#0 : 1 2) ISO NC 프로그램 변환시 오류 N.27480#0 : 1 2. aB160S/10000i Sub spindle 에서 Spindle Amp 12번 알람 발생문제 보완 1) N4007 S3 #7 : 1 , N4014 S3 #3 : 1 설정 3. 간섭영역 설정값 수정(P2600S.MS.SY) 1) D2012 : 537000 → 580000 4. Q-Setter Auto Reverse time 설정값 변경 1) TM41 : 2000 → 1000	최상원	박휘근

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PUMA-NF-MS(2PATH)	PARAMETER MODIFICATION RECORD	NC UNIT	FS0iD/31/32iA

EDITION NO.	DATE (일자)	REVISED CONTENTS (수정 내용)	ENGIN'R (담당)	CHECKED (확인)
A04	10.10.31	4. G84,G88 의 좌표계 설정을 G88 (X축) , G84 (Z축) 을 설정함 1) N5209 #0 : 0 → 1 5. TEC 지역의 Rapid 설정후 handle 빠르게 이송시 위치변화는 문제보완 1) N7117 : 0 → 200 (Allowable number of pulses) 6. 적용시기 : 2010년 11월 생산분부터	최상원	박휘근
A05	10.11.08	1. S1, S2, S3 화면 표시 설정 1) N3718 S1 : 0 → 1, S2 : 0 → 2, S3 : 0 → 3 2. 상대좌표 및 절대좌표계 표시를 Program 경로로 표시함.(offset 미반영) 1) N3129 #1 #0 : 0 → 1 3. C축 기본 설정 변경 1) N1022 C1 : 5 → 0 , C2 : 5 → 0	장용익	박휘근
A06	10.11.30	1. Tool 및 복합 사이클 관련 파라메타 수정 1) N3410 : 2.0 → 0.1 2) N5010 : 0 → 0.05 3) N5105 : 00000000 → 00000110 2. K16.1 문구 변경 1) Spindle 출력 절환기능을 사용함(→1)권선절환, 사용 안함(→0) → Cs mode 선택시 Low 권선절환 기능을 사용함(→1), 사용 안함(→0) 3. 게인 가변 기능 관련 파라메타 수정 1) D500 : 0 → 40 2) D504 : 50 → 120 3) D508 : 800 → 1000 4. G300 기능 동작 관련 파라메타 수정 1) 2203 B #4 : 0 → 1 2) D468 : 0 → 8 / 11 5. 간섭영역 수정(P2100LMS) 1) D2004 : 370000, D2008 : 600000, D2012 : 710000, D2016 : 794000 6. Rev. Spindle Power up (7.5kw.SPM-11i) sheet 추가	장용익	박휘근
A07	10.12.30	1. X축 Pull Up 기능 가능토록 수정 1) N2204 X #7 : 0 → 1 2) N2373 X : 0 → 2000 3) N2374 X : 0 → 64 2. D-data 관련 수정 1) 그룹 byte 수정 2) 세부 내용 수정(D1500 ~ D1750) 3. T02 윤활유 off time 수정 1) T02 : 300000 → 180000 4. Rapid traverse rate 오기값 수정, 기타 C축 관련 오기값 수정 1) N1420, 1424 C1, C2 : 144000 → 72000 2) N1829 C2 : 400000 → 90000 5. Backlash 관련 파라메타 수정 1) N2009 X,Z,B #7 : 1 → 0 6. EZ Guide i Version up 에 따른 시트 변경 1) V 2.3 → V 3.0 7. 동기제어 Error량 과대 관련 파라메타 오기입 값 수정 1) 4065 S3 : 1000 -> 2500	장용익	박휘근
A08	10.01.30	1. Tool offset 개수 변경 1) N5024 : 64 ->128 2. Interference check 값 변경 1) P2600MS D2012 : 580000 -> 890000 2) P2600MS D2016 : 794000 -> 890000	장용익	박휘근

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PUMA-NF-MS(2PATH)	PARAMETER MODIFICATION RECORD	NC UNIT	FS0iD/31/32iA

EDITION NO.	DATE (일자)	REVISED CONTENTS (수정 내용)	ENGIN'R (담당)	CHECKED (확인)
A09	10.02.28	1. 버튼 입력 시간 관련 파라메타 추가(0iTD) 1) N11369 : 01000000 2) N11375 : 00000010 3) N11501 : 00001000 2. 서보 조정값 반영 1) P2100MS N2113 B : 0 -> 405 2) P2100LMS N2113 B : 0 -> 500 3) N2117 B : 0 -> 80 4) N2359 B : 0 -> 10 5) N2107 B : 150 -> 100 3. N1022 C축 값 5로 변경	장용익	박휘근
A10	11.03.30	1. AUTO Q-SETTER TOUCH 관련 반복 정도 관련(터치 속도 ↑) 1) TM41 : 1000 → 500 2) D0465 : 1 → 2 2. Manual Guide i 의 문제점으로 P-Code Command 알람을 발생하지 않음으로 변경 1) N3706 #2 : 0 → 1	장용익	박휘근
A11	11.04.25	1. linear scale Z축 적용 파라메타 변경 1) N1815 #1 Z : 0 -> 1 2) N2018 #0 Z : 0 -> 1 3) N2085 Z : 10 -> 2 4) N2185 Z : 0 -> 16 2. Distabance torque 파라메타 변경 1) N4094 S1 : 500 -> 1000 3. 신기종 추가 1) P2600MSB	장용익	박휘근
A12	11.05.25	1. keep relay 추가 1) K12.2 : COOLANT GUN 사용 여부 2) K16.2 : LONG BORING BAR 사용 여부 3) K16.0 : 회전공구의 각도형 ORIENTATION 사용 여부 2. REV POWER UP 시 파라메타 추가 1) N4030 S2 : 8000 3. MACRO 공용 설정용 D-data 설정 1) D0469 : 4(B-axis 축번호) 4. PMC 축제어 파라메타 추가 및 변경 1) N8002 : 01000000 2) N8022 X : 15000.0 -> 0.0, B : 0.0 -> 16000.0 5. P2600MSB 기종 서보 조정 결과 반영 1) P2600MS N2087 : 1050 -> 960 2) P2600MSB 파라메타 수정 6. Multi spindle orientation 내용 반영 1) N3744 S2 : 5000 -> 3600 7. Manual Guide I 파라메타 시트 Ver. Up 1) Ver. 4 반영	장용익	박휘근
A13	11.06.25	1. C1 & C2 동기제어 가능토록 파라메타 변경 1) N8180 C2 : 0 -> 103 2. Robot interface profibus 파라메타 시트 추가 3. Z& B interference check D값 변경(P2100LMS,P2600MS) 1) P2100LMS D2016 : 710000 -> 794000 2) P2100LMS D2020 : 794000 -> 870000 3) P2600MS D2012 : 400000 -> 610000 4. Programmable 방진구 Keep relay 내용 (K14.5) 추가함.	장용익	박휘근

PUMA-NF-MS(2PATH)	PARAMETER MODIFICATION RECORD	NC UNIT	FS0iD/31/32iA

EDITION NO.	DATE (일자)	REVISED CONTENTS (수정 내용)	ENGIN'R (담당)	CHECKED (확인)
		5. 풀리비 이론 값 반영하여 수정('-' 표시는 변경 내용 없는 부분임)		

메인스핀들	3743	4020	4056	4058	4059	D400	D404	D408	D414
P2100 aP30	6000	6000	-	-	-	3071	-	137	34
P2100 aP22	4505	-	1332	1332	1332	4091	-	-	45
P2100 a15	4502	-	1555	1555	1555	4093	-	-	45
P2600 a18	4108	-	1704	1704	1704	3489	-	199	50

서브스핀들	3743	4020	4056	4058	4059	D428	D430	D432	D434
a6	4499	-	2140	-	2140	-	4096	182	46

A14	11.07.25	1. C2 축 gain 값 변경(전기종) 1) N4047 S3 : 70 -> 40 2) N4055 S3 : 200 -> 120 2. Peck rigid tap cycle에서 후퇴구간 거리 지정 안하도록 변경 N5200#5 : 0 -> 1 3. G code system B에서 UVW의 지령 가능토록 변경 N3400#4 : 0 -> 1	장용익	박휘근
A16	11.10.25	1. K1.7의 설명 내용 중 T9 -> T31로 변경 2. AXIS TORQUE ALARM이 발생토록 파라메타 수정 N1804#5 : 1 -> 0 3. G71 Cycle Type1,2 관련 Parameter 수정 1) N5105#1 : 1 -> 0 (Type 1에서 Semi-finishing 사용 안함) 2) N5134 : 0 -> 1.5	장용익	박휘근
A17	11.11.25	1. 20 bar coolant motor keep relay 추가 K16.3 (K20BA)	장용익	박휘근
A18	12.03.25	1. TTC용 COOLANT FILTER KEEP RELAY 추가 - K4.5(KCFILT) 2. N3282,3283 language 세팅 설명 내용 추가 3. 중력축 인상기능 표준에서 삭제 - N2373 2000 -> 0 4. KEEP RELAY 설명 변경 K9.7(KGL) : 기계 MODEL이 TX20 시리즈가 아니고,GANTRY LOADER를 사용함 -> GANTRY LOADER를 사용함 K16.3(KGUN20) : 20 Bar coolant motor를 사용함 -> Coolant Pump 20 Bar 이상이고 Coolant Gun 적용할 경우에 사용함 5. 간섭영역 D 값 변경 P2100MS D2012 : 620000 -> 480000	장용익	박휘근
A19	12.04.25	1. Tool load monitoring 시트 삭제	장용익	박휘근
A20	12.06.25	1. Rated torque at stall 값 오류 수정 D468 P2100MS : 8, P2600MS : 12 2. Keep Relay 기능추가함 1) K17.4(KQSTIC) : Q-setter가 DOWN 일때,제1,2 원점에서만 공구교환 가능함, 표준=1 2) K17.5(K12RET) : 공구 교환이 제1,2 원점에서만 가능함, 표준=0 3. G71,G72 동작중에 PS0064 알람발생에 따른 수정 1) NO.5145 = "0.500", NO.5146= "0.500" 표준설정 4. 가공프로그램중에 G0 을 입력오류로 GO 입력하여 Macro 에서 GOTO 인식 수정 1) No. 6000#5 = 0 , No. 6000#7 = 1 , No. 6001#0 = 1 , No. 6009 #3 = 1 표준설정 5. 2012년 7월 생산분 부터	장용익	박휘근

PUMA-NF-MS(2PATH)	PARAMETER MODIFICATION RECORD	NC UNIT	FS0iD/31/32iA

EDITION NO.	DATE (일자)	REVISED CONTENTS (수정 내용)	ENGIN'R (담당)	CHECKED (확인)
A21	12.07.25	1. SPINDLE ORIENTATION M04(CCW방향) 지령시 천천히 한바퀴 회전 후 정지 문제 수정 - N4038 S2 : 2000 → 1000 2. G71 복귀 시 x축과 z축이 동시에 사이클 시작점으로 복귀하도록 수정 1) No.5108#1 : 1 (cycle 종료 시 최단거리 복귀) 3. G71 복합형고정사이클에서 포켓가공 중복 동작 오류 수정 1) no.5108#3 : 1 4. 1401 #3 (Positioning G00) 0:Non-linear type 수정 적용 5. 2012년 8월 생산분 부터	윤지훈	홍성달
A22	12.10.25	1. 2nd MPG(Portable MPG) 적용 시 셋업되는 파라메타 표준 반영 1) N7131 : 0 -> 100 2) N7132 : 0 -> 1000 2. Linear scale parameter sheet 분리 3. P2600MSB aP40/6000 시정수 수정 1) aP40/6000 N5261,5263,5271,5273 : 4000 -> 6000	장용익	홍성달
A23	12.11.25	1. KEEP RELAY 용도 변경에 따른 내용 수정 1) K16.3의 심볼 변경 KGUN20 -> KHGUN 2) K16.3 설명 내용 변경(Coolant Pump가 2.2kw이상이고 Coolant Gun 적용할 경우)	장용익	홍성달
A24	13.01.25	1. Poygon 및 동기제어 파라메타 동시 동작 불가 문제 수정 1) N4001#1 S1,S2,S3 : 0 -> 1 2) N4032 S1,S3 : 950 -> 350(Belt), 650(Built-in) 16*i* 30*i* #7 #6 #5 #4 #3 #2 #1 #0 4001 4001 [ ] [ ] [ ] [ ] [ ] [ ] [POLYM] [ ] POLYM The lower limit setting of the acceleration (parameter No. 4032) for polygon machining with two spindles is: 0 : Normal setting For FS30*i* : 916 For FS16*i* : 229 1 : Extended setting For FS30*i* : 1 For FS16*i* : 1 2. Built in Sub spindle 떨림현상으로 인한 파라메타 수정 1) N4121 S3 : 2 -> 5 3. Macro Excuter 관련 파라메타 중복 표시 삭제 및 조정 1) MGi 시트와 공통 시트에 있던 중복 내용 공통 시트로 이동	장용익	홍성달

			LAST EDT
			A24

PUMA-NF-MS(2PATH)	NC PARAMETER	NC UNIT	FS0iD/31/32iA

(TEC:TECNOMACH DIA:U.S.A)

NO.		P260MSB					REMARKS
		αP40/6000					
D0400		4052					
D0402		0					
D0404		682					
D0406		0					
D0408		292					
D0410		0					
D0412		0					
D0414		73					
D0416		0					
D0418		0					
D0420		0					
D0422		4095					
D0424		41					
D0426		27256					
D0428		2303					
D0430		4095					
D0432		102					
D0434		25					
D0436		50					
D0438		4071					
D0460		0					
D0461		0					
D0462		0					
D0463		0					
D0468		12					
D0500		40					
D0504		120					
D0508		1000					
D2000		100000					
D2004		370000					
D2008		600000					
D2012		890000					
D2016		890000					

PUMA-NF-MS(2PATH)	PMC PARAMETER (D)	NC UNIT	FS0iD/31/32iA

1. PMC DATA TABLE

1) DATA TABLE CONTROL DATA

GROUP TABLE CONTROL DATA = 12							
NO.	ADDRESS	TYPE	NUMBER OF DATA	NO.	ADDRESS	TYPE	NUMBER OF DATA
01	D400	1	20	09	D1750	1	10
02	D460	0	10	10	D2000	2	5
03	D470	0	5	11	D5500	1	50
04	D500	1	6	12	D5600	1	50
05	D1300	1	40				
06	D1500	1	10				
07	D1550	1	10				
08	D1700	1	10				

2) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D0400		Main spindle clamp RPM at high winding
02	D0402		
03	D0404		Main spindle clamp RPM at low winding
04	D0406		
05	D0408		Air blow of main spindle RPM (200RPM)
06	D0410		
07	D0412		
08	D0414		Main spindle jogging RPM with door open (50RPM)
09	D0416		
10	D0418		
11	D0420	REF.P28/P28	
12	D0422		Rev. tool spindle clamp RPM
13	D0424		Rev. tool spindle jogging RPM with door open (50RPM)
14	D0426		Rev. tool spindle power clamp
15	D0428		Sub spindle clamp RPM at low winding
16	D0430		Sub spindle clamp RPM at high winding
17	D0432		Air blow of sub spindle RPM (200RPM)
18	D0434		Sub spindle jogging RPM with door open (50RPM)
19	D0436#		Torque limit data
20	D0438#		Spindle synchro Max. clamp RPM

3) DATA TABLE DATA(1BYTE)

NO.	ADDRESS	DATA	REMARK
01	D0460		Gear range shift RPM at low gear
02	D0461		Gear range shift RPM at middle gear
03	D0462		Gear range shift RPM at high gear
04	D0463		Gear range shift RPM at natural gear
05	D0464		
06	D0465	2	Jog axis feedrate while Q-setter is downed (unit : 10mm/min)
07	D0466		
08	D0467		
09	D0468	REF.P28/P28	Rated torque at stall
10	D0469	4	Macro variable setting for B-axis

4) DATA TABLE DATA(1BYTE)

NO.	ADDRESS	DATA	REMARK
01	D0470		Tool number for 1st tool counter
02	D0471		Tool number for 2nd tool counter
03	D0472		Tool number for 3rd tool counter
04	D0473		Tool number for 4th tool counter
05	D0474		Tool number for 5th tool counter

5) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D500	REF.P28/P28	Parameter 4047 Cs proportional gain value(C1)
02	D502		
03	D504		Parameter 4055 Cs integral gain value(C1)
04	D506		
05	D508		Parameter 4094 Disturbance torque compensating constant(C1)
06	D510		

6) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D1300	26	B-axis actual speed read
02	D1302		
03	D1304	4	B-axis actual speed data length
04	D1306		
05	D1308		
~	~		
40	D1340		

7) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D1500	28	Position data read : G300 start position
02	D1502		
03	D1504		
04	D1506		
05	D1508	4	B-axis selection
~	~		
10	D1518		

8) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D1550	28	Position data read : current position
02	D1552		
03	D1554		
04	D1556		
05	D1558	4	B-axis selection
~	~		
10	D1568		

9) DATA TABLE DATA(2BYTE)

NO.	ADDRESS	DATA	REMARK
01	D1700	28	Position data read : G326 start position
02	D1702		
03	D1704		
04	D1706		
05	D1708	4	B-axis selection
~	~		
10	D1718		

10) DATA TABLE DATA(4BYTE)

NO.	ADDRESS	DATA	REMARK
01	D1750	28	Position data read : current position
02	D1752		
03	D1754		
04	D1756		
05	D1758	4	B-axis selection
~	~		
10	D1768		

11) DATA TABLE DATA(4BYTE)

NO.	ADDRESS	DATA	REMARK
01	D2000	REF.P28/P28	No load detection area
02	D2004		Interferrnce area check off
03	D2008		Interferrnce area check A
04	D2012		Interferrnce area check B
05	D2016		Interferrnce area check C

2. NOTE

: D-data setting releated to spindle.

$$\text{Setting value of speed data} = \frac{\text{Spindle speed to be limited}}{\text{Spindle maximum speed}} \times 4095$$

1) Limit speed ≤ Maximum speed

2) Spindle maximum speed = setting value of parameter No. 3741 ~ No. 3743 according to each gear range

PUMA-NF-MS(2PATH)	PMC PARAMETER (T)	NC UNIT	FS0iD/31/32iA

NO.	Add		Value(ms)	REMARKS
01	T00		15000	Lub. motor on time
02	T02		180000	Lub. motor off time
03	T04		45000	Initial lub. Motor on time
04	T06	#	3000	Main chuck clamp check time
05	T08	#	1500	Main chuck unclamp check time
06	T10	#	3000	Sub chuck clamp check time
07	T12	#	1500	Sub chuck unclamp check time
08	T14	#	600000	Standbye power saving on time
09	T16			
10	T18			
11	T20			
12	T22			
13	T24		200	Speed range change delay time
14	T26			
15	T28			
16	T30			
17	T32	#	20	Turret unclamp delay time
18	T34		600	Turret servo off delay time
19	T36			
20	T38			
21	T40		200	C1-axis servo off time
22	T42	#	500	C1-axis clamp delay time
23	T44		500	C1-axis clamp/unclamp check time
24	T46		200	C2-axis servo off time
25	T48	#	500	C2-axis clamp delay time
26	T50		500	C2-axis clamp/unclamp check time
27	T52			
28	T54			
29	T56			
30	T58			
31	T60	#		Chip conveyor on time
32	T62	#	3000	Parts conveyor run time
33	T64	#	1000	Parts catcher advance finish time
34	T66	#	3000	High/low chucking check time
35	T68	#	3000	Chuck air blow on time
36	T70			
37	T72	#	20000	Barfeeder(M50) alarm check time
38	T74	#		HYD. Tool adv/ret delay time
39	T76	#		Long shaft work on time
40	T78	#	20000	Q-setter measure time over delay
41	T80	#	500	Q-setter measure auto-reverse time.
42	T82			
43	T84			

NO.	Add		Value(ms)	REMARKS

PUMA-NF-MS(2PATH)	PMC PARAMETER (K)	NC UNIT	FS0iD/31/32iA

1. PMC KEEP RELAY

1) KEEP RELAY LIST

ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS
K00	KAPRS	KFORI	KPRSCH	KCPRS			KPMCB 1		
K01	KTMCHP	KHINT		KSTREF	KAZRN 1	KGN 1	KYW 1	KRD 1	
K02	KTDRN	KLHUSE			KSAR	KMABS	KNQHD	KTMLK	
K03	KTCL	KCLFIN	KCOLTG	KM00 1		KF0%IT	KMLKI	KFHSPC	
K04			KCFILT	KIGPOW 1	KSAFD	KM7M8	KLED		
K05	KACHA	KMCHA 1		KTALM		KHYDON 1		KHPOK	
K06	KM50DU	KMODE	KM50	KCJET	KMQST	K12TS	K10TS	K8TS	
K07	KCHPXS	KCHPXM	KQSET 1		KSMW	KHYDBF	KLNSSP	KLNSSG	
K08	KQULCF		KPARTS 1	KQPBUC	KCKNIT 1	KABSPL 1	KORCB	KCHSPM	
K09	KGL	KGWTS	KPTS	KSTD 1				KCHIP	
K10	KTEC	KMILLS		KSPARE	KQCFST		KT00 1	KSPJOG 1	
K11			KTQCO 1	KINTF	KM23	KALAPF			
K12	KSREF	KEDGE	KPFM		KAIRCAP	KGUN	KMGI		
K13		KCHPRS	KCUSEN			KCOLFL	KSWIDG		
K14			KPSR	KSDSR	KM135	KPMPG	KCHSPS		
K15	KWJRT	K24TS 1	KSGAIN 1	KUSBIN	KNUQAM	KSELY	KNUPSV	KARUN	
K16					KHGUN	KLBB	KNULOW 1	KMORCB	
K17			K12REF	KQSTIC 1					
K18									
K19									
K20									
K21									
K22									
K23									
K24									
K25									
K26									

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K0.0		
K0.1 (KPMCB)	B axis control function is used(→1), or not(→0) B축 제어 기능을 사용함(→1), 사용 안함(→0)	
K0.2		
K0.3		
K0.4 (KCPRS)	Coolant pressure switch is used(→1), or not(→0) COOLANT PRESSURE CHECK 스위치를 사용함(→1),사용 안함(→0)	
K0.5 (KPRSCH)	Alarm of feed hold is gengrated in high-low chucking(→0), or not(→1) HIGH-LOW CHUCKING 변환시 FEED HOLD ALARM이 발생함(→0),발생 안함(→1)	
K0.6 (KFORI)	The first orientation of the 2nd spindle is performed(→1) to set shift value ,or not(→0) 최초 REV. TOOL 원점을 잡기 위한 REV. TOOL ORIENTATION를 수행함(→1),수행 안함(→0)	
K0.7 (KAPRS)	Air pressure switch is used(→0), or not(→1) AIR PRESSURE 스위치를 사용함(→0), 사용 안함(→1)	
K1.0 (KRD)	Red PATROL LIGHT is used(→1), or not(→0) PATROL LIGHT 적색 사용함(→1), 사용 안함(→0)	
K1.1 (KYW)	Yellow PATROL LIGHT is used(→1), or not(→0) PATROL LIGHT 황색 사용함(→1), 사용 안함(→0)	
K1.2 (KGN)	Green PATROL LIGHT is used(→1), or not(→0) PATROL LIGHT 녹색 사용함(→1), 사용 안함(→0)	
K1.3 (KAZRN)	In REF.mode, reference point is returned by one touch of jog switch(→1), or not(→0) 원점모드에서, 원터치 원점복귀를 수행함(→1), 수행 안함((→0)	
K1.4 (KSTREF)	In REF.mode, reference ponit is returned by CYCLE START switch(→1), or not(→0) 원점모드에서, CYCLE START 스위치에 의한 원점복귀를 수행함(→1), 수행 안함((→0)	
K1.5		
K1.6 (KHINT)	CYCLE START is available without reference point return not completed(→1), or not(→0) 원점복귀 수행 없이 CYCLE START가 가능함(→1), 불가함(→0)	
K1.7 (KTMCHP)	Chip conveyor is stopped by timer NO.31(→1) or M25(→0) after M24 M24 지령 이후 TIMER NO.31에 의해 (→1), M25에 의해(→0) CHIP CONVEYOR를 정지함	
K2.0 (KTMLK)	Aux. machine lock function is used(→1), or not(→0) 보조 MACHINE LOCK을 사용함(→1), 사용 안함((→0)	
K2.1 (KNQHD)	In Handle Mode, Tool offset compensation by Q-Setter is used(→0), or not(→1) Q-SETTER에 의한 TOOL OFFSET보정을 핸들모드에서 사용함(→0), 사용 안함((→1)	
K2.2 (KMABS)	MANUAL ABSOLUTE function is used(→0), or not(→1) MANUAL ABSOLUTE 기능을 사용함(→0), 사용 안함(→1)	
K2.3 (KSAR)	In programming, spindle speed arrival signal(SAR) is used(→0), or not(→1) 가공시 SPINDLE SPEED 도달 확인 신호(SAR)를 사용함(→0), 사용 안함(→1)	
K2.4		
K2.5		
K2.6 (KLHUSE)	When M03, M04 is ordered without M66,M77 command, the alarm occurs(→1), or not(→0) M66,M67 지령없이 M03,M04 지령시 ALARM이 발생함(→1), 발생하지 않음(→0)	
K2.7 (KTDRN)	When DRY RUN issued during auto machining, dry run alarm soccurs(→1), or not(→0) 자동운전중 DRY RUN 지령시 ALARM이 발생함(→1), 발생하지 않음(→0)	
K3.0 (KFHSPC)	Spindle and coolant stop running on FEED HOLD or SINGLE BLOCK ALARM (→1), or not(→0) FEED HOLD or SINGLE BLOCK 알람 발생시 SPINDLE과 COOLANT를 정지함(→1), 정지 안함(→0)	
K3.1 (KMLKI)	Reference point return is ignored after machine lock(→1), or not(→0) MACHINE LOCK 이후 원점 복귀를 무시함(→1), 무시하지 않음(→0)	
K3.2 (KF0%IT)	FEED OVERRIDE가 0%일 때 급속 이송이 가능함(→1), 불가함(→0) Rapid override is available on feedrate override 0%(→1), or not(→0)	

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K3.3		
K3.4 (KM00)	Spindle and coolant stopped by M00 or M01 run again by cycle start button(→1), or not(→0) M00,M01에 의해 정지된 스핀들과 냉각제를 CYCLE START만으로 재개함(→1), 불가함(→0)	
K3.5 (KCOLTG)	High pressure coolant runs when manual coolant switch is on(→1), or not(→0) COOLANT SW가 수동에서 "ON"인 경우 고압(옵션) COOLANT가 동작함(→1), 동작 안함(→0)	
K3.6 (KCLFIN)	M-code for coolant is finished by motor(→1) or internal relay operation(→0) COOLANT ON M-CODE 지령시 M-CODE가 MOTOR의 동작(→1), 내부 RELAY(→0)에 의해 완료됨	
K3.7 (KTCL)	Coolant is valid even splash guard is opened(→1), or not(→0) DOOR가 OPEN되어도 COOLANT를 사용함(→1), 안함(→0)	
K4.0		
K4.1 (KLED)	When EMG.STOP button is released in not ready, all LEDs on OP will flick(→1), or not(→0) SERVO NOT READY 상태에서 비상 정지 버튼 해제시 모든 LED 가 점멸함(→1), 점멸 안함(→0)	
K4.2 (KM7M8)	When low and high coolant are used, M7 or M8 is available without M9(→1), or not(→0) HIGH/LOW COOLANT가 동시에 사용될 때, M9 지령없이 M7,M8 지령이 가능함(→1), 불가함(→0)	
K4.3 (KSAFD)	The safety auto door is used(→1), or not(→0) SAFETY AUTO DOOR를 사용함(→1), 사용 안함(→0)	
K4.4 (KIGPOW)	Motor power off function is used(→0), or not(→1) MOTOR POWER ON/OFF 기능을 사용함(→0), 사용 안함(→1)	
K4.5 (KCFILT)	COOLANT FILTER를 사용함(→1),사용 안함(→0) When coolant filter is used(→1) or not(→0)	
K4.6		
K4.7		
K5.0 (KHPOK)	HYD. pressure switch is used(→0), or not(→1) HYD. PRESSURE 스위치를 사용함(→0), 사용 안함(→1)	
K5.1		
K5.2 (KHYDON)	Main hydraulic pressure is off on emergency(→1), or not(→0) 비상정지시 MAIN유압을 OFF상태로 함(→1), 하지 않음(→0)	
K5.3		
K5.4 (KTALM)	In servo turret, turret is unclamped by setting this keep relay(→1), or not(→0) SERVO TURRET 에서 강제로 TURRET 을 UNCLAMP 함(→1), 안함(→0)	
K5.5		
K5.6 (KMCHA)	Spindle speed change is used by M-Code (→1), or Not(→0) M-Code에의한 출력 절환기능을 사용함(→1), 사용 안함(→0)	
K5.7 (KACHA)	Spindle speed range change is used by speed range (→1), or Not(→0) Spindle r.p.m 에 의한 출력 절환기능을 사용함(→1), 사용 안함(→0)	
K6.0 (K8TS)	The turret with 8 tools is used(→1), or not(→0) 8각 TURRET을 사용함(→1), 사용 안함(→0)	
K6.1 (K10TS)	The turret with 10 tools is used(→1), or not(→0) 10각 TURRET을 사용함(→1), 사용 안함(→0)	
K6.2 (K12TS)	The turret with 12 tools is used(→1), or not(→0) 12각 TURRET을 사용함(→1), 사용 안함(→0)	
K6.3 (KMQST)	Manually operated Q-SETTER is used(→1), or not(→0) 수동으로 조작되는 Q-SETTER 를 사용함(→1), 사용 안함(→0)	
K6.4 (KCJET)	COOL JET Coolant pump is used(→1), or not (→0) COOL JET COOLANT PUMP를 사용함(→1), 사용 안함(→0)	
K6.5 (KM50)	Bar feeder is advanced by M50(→1), or auto mode signal(→0) BAR FEEDER 전진을 위해 M50(→1)를 사용함, AUTO MODE 상태 신호(→0)를 사용함	

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K6.6	Bar feeder is advanced by auto mode(→1), or stl(→0). It's available when K6.5(KM50) is 0	
(KMODE)	K6.5가 "0"인 상태에서 바피더 전진을 위해 AUTO MODE를 사용함(→1), STL을 사용함(→0)	
K6.7	Bar feeder advance is kept by M50(→1), or not(→0)	
(KM50DU)	BAR FEEDER 의 전진이 M50 에 의하여 계속 유지함(→1), 유지 안함(→0)	
K7.0	Single bar load type of LNS BAR FEEDER is used(→1), or not(→0)	
(KLNSSG)	SINGLE BAR 형의 LNS BAR FEEDER 를 사용함(→1), 사용안함(→0)	
K7.1	Mini/Sprint type of LNS BAR FEEDER is used(→1), or not(→0)	
(KLNSSP)	MINI/SPRINT 형의 LNS BAR FEEDER 를 사용함(→1), 사용안함(→0)	
K7.2	Hydro bar type of BAR FEEDER is used(→1), or not(→0)	
(KHYDBF)	HYDRO BAR 형의 BAR FEEDER 를 사용함(→1), 사용안함(→0)	
K7.3	SMW BAR FEEDER is used(→1), or not(→0)	
(KSMW)	SMW BAR FEEDER 를 사용함(→1), 사용안함(→0)	
K7.4		
K7.5	Q-setter is used (→1), or not (→0)	
(KQSET)	Q-SETTER를 사용함 (→1), 사용 안함(→0)	
K7.6	PX. switch for examing the state of main-chuck is not used(→1), or used(→0)	
(KCHPXM)	MAIN-CHUCK의 척상태를 감지하는 근접 스위치를 사용 안함(→1), 사용함(→0)	
K7.7	PX. switch for examing the state of sub-chuck is not used(→1), or used(→0)	
(KCHPXS)	SUB-CHUCK의 척상태를 감지하는 근접 스위치를 사용 안함(→1), 사용함(→0)	
K8.0	Sperate type of main-foot switch(clamp/unclamp) is used(→1) or not(→0)	
(KCHSPM)	MAIN-척제어용 FOOT 스위치가 CLAMP/UNCLAMP의 분리형을 사용함(→1), 사용 안함(→0)	
K8.1	Orientation function of angle index type is used(→1), or not(→0)	
(KORCB)	각도 설정형의 SPINDLE ORIENTATION 기능을 사용함(→1), 사용 안함(→0)	
K8.2	Air blow of chuck runs with spindle rotating(→1), or not(→0)	
(KABSPL)	SPINDLE 회전과 함께 CHUCK-AIR BLOW를 사용함(→1), 사용 안함(→0)	
K8.3	Chuck un/clamped is valid by foot sw even while bar is feeding(→1), or not(→0)	
(KCKNIT)	바피더가 FEEDING중에도 FOOT 스위치에 의한 CHUCK UN/CLAMP가 가능함(→1), 불가함(→0)	
K8.4	To clamp and unclamp a body are available on advanced tailstock quill(→1) or not(→0)	
(KQPBUC)	TAILSTOCK QUILL이 전진상태에서 몸체의 CLAMP/UNCLAMP가 가능함(→1), 불가함(→0)	
K8.5	Parts catcher is used (→1), or not (→0)	
(KPARTS)	PARTS CATCHER를 사용함 (→1), 사용 안함(→0)	
K8.6		
K8.7	Quill of tailstock advance and retract is confirmed by switch(→1), or not(→0)	
(KQULCF)	TAILSTOCK QUILL의 전,후진에 확인 SWITCH를 사용함(→1), 사용 안함(→0)	
K9.0	The alarm detection function of CHIP Conveyor is used(→1), or not(→0)	
(KCHIP)	CHIP CONVEYOR의 Alarm 검출 기능을 사용함(→1), 사용안함(→0)	
K9.1		
K9.2		
K9.3		
K9.4	When standard door interlock function is used(→1), or not(→0)	
(KSTD)	표준 도어 인터록 기능을 사용함(→1), 사용안함(→0)	
K9.5	Programmable tail stock(PTS) is used (→1), or not (→0)	
(KPTS)	PROGRAMMABLE TAIL STOCK (PTS)를 사용함 (→1), 사용 안함(→0)	
K9.6		
K9.7	Gantry loader is used (→1), or not(→0)	
(KGL)	GANTRY LOADER를 사용함(→1), 사용안함(→0)	
K10.0	In auto mode, spindle jogging is invalid(→1), or not(→0)	
(KSPJOG)	AUTO MODE에서 SPINDLE JOGGING이 불가함(→1), 가능함(→0)	

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K10.1 (KT00)	Program runs without alarm when T0000 is commanded in auto mode(→1),or not(→0) T0000 지령시 ALARM 없이 PROGRAM을 정상적으로 수행함(→1), 수행 안함(→0)	
K10.2		
K10.3 (KQCFST)	When K8<7> was setting "1", quill advance is kept by switch(→0), or timer(→1) K8<7>이 "1"인 경우 QUILL 전진 상태유지를 위해 SWITCH를 사용함(→0), TIMER를 사용함(→1)	
K10.4 (KSPARE)	Input signal is used to finish M91 and M92(→0), or not(→1) M91,M92의 완료를 위해 입력 신호를 사용함(→0), 사용 안함(→1)	
K10.5	This bit can't use. (Only for Ez-guide T) 사용할수없음.(EZ-Guide T 전용기능 bit임)	
K10.6 (KMILLS)	When door interlock function of mills market is used(→1) or not(→0) MILLS MARKET의 도어 인터록 기능을 사용함(→1), 사용 안함(→0)	
K10.7 (KTEC)	When door interlock function of italy tecnomach is used(→1) or not(→0) 이태리 테크노막의 도어 인터록 기능을 사용함(→1), 사용 안함(→0)	
K11.0 (KFLOAT)	FLOAT SENSOR is used(→1) or not(→0) FLOAT SENSOR 를 사용함(→1), 사용 안함(→0)	
K11.1		
K11.2 (KALAPF)	When occur machine alarm, Auto power off function is used(→1), or not(→0) Machine alarm 발생시 Auto power off 기능을 사용함(→1), 사용 안함(→0)	
K11.3 (KM23)	Program start M-Code (M23) is used(→1), or not(→0) Program start M-Code (M23) 을 사용함(→1), 사용 안함(→0)	
K11.4 (KINTF)	This bit can't use. (Only for interference area set) 사용할수없음. (간섭 영역 체크용 전용 기능 bit임)	
K11.5 (KTQCO)	The Torque control function (G300,G301,G350) is used(→1) or not(→0) 토르크제어기능(G350,G300,G301)을 사용함(→1), 사용 안함(→0)	
K11.6		
K11.7		
K12.0	This bit can't use. (Only for DHIAC) 사용할수없음. (DHIAC 전용기능 bit임)	
K12.1 (KMGI)	Manual guide is used(→1) or not(→0) MANUAL GUIDE 를 사용함(→1), 사용 안함(→0)	
K12.2 (KGUN)	Coolant gun is used(→1) or not(→0) COOLANT GUN 을 사용함(→1), 사용 안함(→0)	
K12.3 (KAIRCAP)	Air gap sensor is used(→1) or not(→0) AIR GAP SENSOR 를 사용함(→1), 사용 안함(→0)	
K12.4		
K12.5 (KPFM)	Power failure back-up module is used(→1) or not(→0) POWER FAILURE BACK-UP MODULE 을 사용함(→1), 사용 안함(→0)	
K12.6 (KEDGE)	Safty EDGE sensor is used(→1) or not(→0) SAFTY EDGE SENSOR 를 사용함(→1), 사용 안함(→0)	
K12.7 (KSREF)	When NC power on, X,Y axis reference point return setting function is used(→1) or not(→0) X,Y축 최초 원점 설정 기능을 사용함(→1), 사용 안함(→0)	
K13.0		
K13.1 (KSWIDG)	Sub spindle speed range change is used (→1)Winding, or Not(→0) Sub spindle 출력 절환기능을 사용함(→1)권선절환, 사용 안함(→0)	
K13.2 (KCOLFL)	Coolant flushing motor is used(→1), or not(→0) COOLANT FLUSHING MOTOR를 사용함(→1), 사용안함(→0)	
K13.3		

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K13.4		
K13.5 (KCUSEN)	Cycle start enable in the state of chuck unclamp(→1), or not(→0) CHUCK-UNCLAMP 상태에서 CYCLE START가 가능함(→1), 사용 안함(→0)	
K13.6 (KCHPRS)	Chuck pressure switch is used(→1) or not(→0) CHUCK PRESSURE SWITCH 를 사용함(→1), 사용 안함(→0)	
K13.7		
K14.0		
K14.1 (KCHSPS)	Sperate type of sub-foot switch(clamp/unclamp) is used(→1) or not(→0) SUB-척 제어용 FOOT 스위치가 CLAMP/UNCLAMP의 분리형을 사용함(→1), 사용 안함(→0)	
K14.2 (KPMPG)	Portable M.P.G is used(→1), or not(→0) Portable M.P.G.를 사용함(→1), 사용 안함(→0)	
K14.3 (KM135)	C1,C2 Switching Function is available(→1), or not (→0) C1,C2 Switching 기능을 사용함(→1), 사용 안함(→0)	
K14.4 (KSDSR)	Servo steady rest is used (→ 1), or not(→ 0) 서보 방진구를 사용함.(→1), 사용 안함(→0)	
K14.5 (KPSR)	Programmable steady rest is used (→ 1), or not(→ 0) 오토 방진구를 사용함.(→1), 사용 안함(→0)	
K14.6		
K14.7		
K15.0 (KARUN)	자동프로그램 수행중 수동 스위치 조작이 불가함(→1), 유효함(→0) Manual switch interruption is disable at auto running(→1), or not(→0)	
K15.1 (KNUPSV)	Standby power saving function is used(→0), or not(→1) 대기 전력 절전기능을 사용함(→0), 사용 안함(→1)	
K15.2 (KSELY)	Machine type selecting Keep Relay. In case of Y or SY-Machine, This bit must be set to "1" 장비 TYPE을 선택하는 KEEP RELAY임. Y 또는 SY장비일 경우 반드시 "1"로 설정	
K15.3 (KNUQAM)	Auto moving touch and reverse function for Q-setter is used(→0), or not(→1) Q-SETTER 자동 터치 기능을 사용함(→0), 사용 안함(→1)	
K15.4 (KUSBIN)	Built-in spindle is used (→ 1), or Bult spindle is used(→ 0) 빌트인 타입 주축을 사용함.(→1), 벨트 타입 주축을 사용함(→0)	
K15.5 (KSGAIN)	Spindle gain control for material piecs is used (→ 1), or not(→ 0) 소재 무게에 따른 스핀들 게인 제어를 사용함(→1), 사용 안함(→0)	
K15.6 (K24TS)	The turret with 24 tools is used(→1), or not(→0) 24각 TURRET을 사용함(→1), 사용 안함(→0)	
K15.7 (KWJRT)	Work ejector retract sensor is used(→0), or not(→1) WORK EJECTOR RETRACT SENSOR를 사용함(→0), 사용 안함(→1)	
K16.0 (KMORCB)	Angle index type Orientation function of revolving tool is used(→1), or not(→0) 회전공구의 각도 설정형 SPINDLE ORIENTATION 기능을 사용함(→1), 사용 안함(→0)	
K16.1 (KNULOW)	In Cs mode, Low winding function is used (→1), or Not(→0) Cs mode 선택시 Low 권선절환 기능을 사용함(→1), 사용 안함(→0)	
K16.2` (KLBB)	Long boring bar is used(→1), or not(→0) Long boring bar를 사용함(→1), 사용 안함(→0)	
K16.3 (KHGUN)	High pressure coolant(3.7kw and 20bar) and coolant gun is used(→1), or not(→0) Coolant Pump가 2.2kw이상이고 Coolant Gun 적용할 경우에 사용함(→1), 사용 안함(→0)	
K16.4		
K16.5		
K16.6		

2) KEEP RELAY EXPLANATION

ADDRESS	MEANING	REMARKS
K16.7		
K17.0		
K17.1		
K17.2		
K17.3		
K17.4 (KQSTIC)	When Q-setter is down, Tool change only can be in 1st or 2nd Ref.point (→1), or NOT(→0) Q-setter가 DOWN 일때,제1,2 원점에서만 공구교환 가능함(→1), 원점 외에도 가능(→0)	
K17.5 (K12RET)	Tool change only can be in 1st or 2nd Ref.point (→1), or NOT(→0) 공구 교환이 제1,2 원점에서만 가능함(→1), 원점 아닌 곳에서도 가능(→0)	
K17.6		
K17.7		
K18.0		
K18.1		
K18.2		
K18.3		
K18.4		
K18.5		
K18.6		
K18.7		
K19.0		
K19.1		
K19.2		
K19.3		
K19.4		
K19.5		
K19.6		
K19.7		
K20.0		
K20.1		

PUMA-NF(1 PATH)	SERVO DRIVE PARAMETERS	NC UNIT	FS0iD/31/32iA

(TEC:TECNOMACH DIA:U.S.A)

NO.	DATA	REMARKS
00	20	Motor power capacity
01	1	Motor running direction
02	0	Reserve parameter
03	0	Fix-direction, Jog function selection
04	Auto set	Encoder Pulse per One Rotation
05	10/12 / 24	10 / 12 / 24 Tools Post
06	3850	Gear Ratio - Motor Side
07	1000/1200/2400	10 / 12 / 24 Tools Post
08	-	Post Number of Home
09	0 / 1	Alternate angles tool post (24 TOOLS only set "1")
10	400	Position loop proportional gain
11	500	Speed loop proportional gain
12	400	Speed loop integral gain
13	0	Brake off delay time
14	0	Brake off control delay time
15	0	Brake on delay time
16	0	Monitor offset voltage
17	0	Monitor selection
18	300	Positioning complete range
19	6000	Remaining pulse allowance
20	0	Position loop feed-forward gain
21	0	Feed-forward filter time constant
22	280	Positive Torque Limit 1
23	280	Negative Torque Limit 1
24	30	Positive torque limit 2
25	30	Negative torque limit 2
26	1850	Speed limit
27	100	Jog speed at set home
28	1800	Operation Speed
29	72	Acceleration Time
30	120	Deceleration Time
31	3000	Speed monitor output voltage
32	1500	Torque monitor output voltage
33	6	Initial status display
34	AUTO SET	Encoder coordinates compensation (LOW)
35	AUTO SET	Encoder coordinates compensation (UP)
36	AUTO SET	Set value of machine zero-point (LOW)
37	AUTO SET	Set value of machine zero-point (UP)
38	1000	Current loop proportional gain
39	1000	Current loop integral gain
40	AUTO SET	Feedback pulse(LOWER)
41	AUTO SET	Feedback pulse(UPPER)
42	AUTO SET	Feedback pulse(UPPER)
43	AUTO SET	Acceleration rate of remaining value
44	AUTO SET	Deceleration rate of Remaining Value
45	AUTO SET	Reserve Parameter
46	0	SPEED OVERRIDE

1. PARAMETER SETTING METHOD

1) Press "MODE" on SERVO TURRET DRIVE.
2) Change to parameter fixing mode as the following display.

0.0.0000

The first two segments are the parameter NO.
The last four segments are the setting value.

3) Search parameter NO. to be changed by pressing "UP" or "DOWN".
4) Press "SET" after searching parameter NO. to be changed.
5) The dot below the first two segments will disappear.
6) Press "UP" or "DOWN" to adjust 4 segments to value to be set.
7) Press "SET" after completion of adjusting.
8) The dot will appear below the first two segments.
9) The data will be stored.
10) Some parameters will display the former data after setting.
11) The parameters will display the stored data after power on/off.

2. POST NUMBER OF HOME SETTING METHOD

1) Normally clamp the turret to any position.
2) Set current position NO. to parameter NO.8
3) The display will turn to the former setting value after setting. (When power is turned off and then turned on again, it will display the stored data)
4) Press "MODE" and change the display of the servo ON/OFF mode.

rd-oFF

5) Press "DOWN" and change the display to zero-point setting mode.

0r9.5--

6) Press "SET" for 5 seconds and display will set parameter automatically and the turn back the display to zero-point setting mode.
7) Turn the power OFF and the ON again and the setting of the zero point is now completed.

3. NOTE

1) Don't change parameters during indexing.
2) Adjusted parameters operated as the following.
   ① **Parameter NO.00~09**
   : Adjusted parameters are only valid when power is off → on. You can adjust the parameters under the servo is off
   ② **Parameter NO.10~18**
   : You can adjust the parameters under the servo is off or on.
   ③ **Parameter NO.19~33**
   : You can adjust the parameters under the servo is off.
   ④ **Parameter NO.34~45**
   : These parameters will be set automatically by home setting. **Do not change these parameters.**
3) Do not turn the power while mounting or dismounting the operator panel of turret servo drive.

EDITION	DATE		PAGE
A02	10.08.24	Added 10 Tools Post, n05→10, n07→1000	

PUMA -TC	PARAMETERS FOR EZ - GUIDE i	FS31/32iA/OiTD

NO.	DATA	REMARK
3103#3	1	
3106#2	1	
3112#0	0	
3201#6	1	
3202#4	1	
3202#6	0	
3206#6	1	
6055	500	
6056	600	
6057	700	
6058	800	
6059	900	
8650	00110111	
8661	0	SRAM size for variables used by C-EXE
8662	0	SRAM size for application disk used by C-EXE
8781	64	DRAM size used for user program
12381	20000	Top macro variable number of measuring condition
12382	20180	Top macro variable number of calibration
12383	20300	Top macro variable number of measuring operation
12384	20500	Top macro variable number of measured data
12385	699	
12386	951	PMC Signal for measuring (Number of R Signal)
12387	0	Macro variable number of tool selecting
12388	3600	Macro program number of measuring operation

NO.	DATA	REMARK
14700	00010000	
14704	11110011	
14713	255	Scale factor unit
14714	10	Moving unit for horizontal direction
14715	10	Moving unit for vertical direction
14717	3	Axis number for C-axis (M,Y,MS-TYPE)
14720	1	Registration start number of turning subprog.
14721	7999	Registration end number of turning subprog.
14722	1	Registration start number of milling subprog.
14723	7999	Registration end number of milling subprog.
14840	0	XZ Plan view, Horizontal =+Z, Vertical =+X
14841	0	ZC Plan view, Horizontal =+Z, Vertical =-C
14842	0	YZ Plan view, Horizontal =+Z, Vertical =-Y
14846	0	
14850	00000010	
14853	10000000	
14863	10	Hold time for cursor
14864	1	Only OiTD-Series
27003	00000000	
27004	00000000	
27005	89	
27006	90	
27007	8000	Rapid traverse for C-axis
27008	8000	Rapid traverse for C-axis
27011	189	
27012	190	
27040	00001000	Cutter compen sation
27060	00000010	
27100	00000010	
27101	00000000	
27102	10000110	
27170	00000011	
27120	00000110	
27310	00001001	
27311	00000010	M,Y - TYPE
27312	00000001	
27335	9	
27336	0	
27400	00000001	
27480	00000001	
27120#2	1	Face cutting on
27100#2	1	Blank make automaticaly
With custom software(Tool load monitoring)		
14703	01100001	
14794	00000010	
14795	00000000	

EDITIO	DATE	REVISED CONTENT

TYPE OF M/C	PARAMETERS FOR EZ - GUIDE i	FS31/32iA/OiTD

NO.	DATA	REMARK
		2-AXIS
8801	00100000	Bit5:Only with Y-axis
14701	00000000	
14702	00000001	
14706	16	Horizontal
14707	0	Workpiece coordinate for sub-spindle
14855	00000001	Y-axis offset
14856	00001001	Milling cycle disable
27000	01010011	2A,S-TYPE
27001	00000000	
27103	00000001	(X,Z)
		M-TYPE
8801	00100010	Bit5:Only with Y-axis
14701	00000000	
14702	00000001	
14706	16	Horizontal
14707	0	Workpiece coordinate for sub-spindle
14717	3	Rotate Cs axis no.
14718	0	No tilt axis
14855	00000001	
14856	00000001	
27000	01111111	M,MS,Y,SY-TYPE
27001	00000001	
27002	01000000	
27095	00000100	Polygon turning on
27301	3	Rotate axis no.
27302	0	
		MS-TYPE
8801	00100010	Bit5:Only with Y-axis
14701	00000010	Tool post can be used with sub-spindle.
14702	00000011	
14706	16	Horizontal
14707	16	Workpiece coordinate for sub-spindle
14717	3	Rotate Cs axis no.
14718	0	No tilt axis
14855	00000001	Y-axis offset
14856	00000001	
27000	01111111	M,MS,Y,SY-TYPE
27001	00000011	
27002	01000000	
27095	00000100	Polygon turning on
27103	10000010	MS-Type (X,Z,C,Sub-spindle)
27301	3	Rotate axis no.
27302	3	
		S-TYPE
8801	00100010	Bit5:Only with Y-axis
14701	00000010	Tool post can be used with sub-spindle.
14702	00000011	
14706	16	Horizontal
14707	16	Workpiece coordinate for sub-spindle
14717	0	Rotate Cs axis no.
14855	00000001	Y-axis offset
14856	00001001	
27000	01010011	2A, S-TYPE
27001	00000011	
27103	10000001	S-Type (X,Z,Sub-spindle)
27301	0	Rotate axis no.

NO.	DATA	REMARK
		SY-TYPE
8801	00000010	Bit5:Only with Y-axis
14701	00000010	Tool post can be used with sub-spindle.
14702	00000011	
14706	16	Horizontal
14707	16	Workpiece coordinate for sub-spindle
14717	3	Rotate Cs axis no.
14718	0	No tilt axis
14855	00000000	Y-axis offset
14856	00000001	
27000	01111111	M,MS,Y,SY-TYPE
27001	00000011	
27002	01001000	
27095	00100100	Polygon turning on
27103	10000100	SY-Type (X,Z,C,Y,Sub-spindle)
27301	3	Rotate axis no.(MAIN)
27302	3	Rotate axis no.(SUB.)
		Y-TYPE
8801	00000010	Bit5:Only with Y-axis
14701	00000000	
14702	00000001	
14706	16	Horizontal
14707	0	Workpiece coordinate for sub-spindle
14717	3	Rotate Cs axis no.
14718	0	No tilt axis
14855	00000000	Y-axis offset
14856	00000001	
27000	01111111	M,MS,Y,SY-TYPE
27001	00000001	
27002	01001000	
27095	00100100	Polygon turning on
27103	10000100	(X,Z,C) M-Type
27301	3	Rotate axis no.
27302	0	
		VERTICAL MACHINE
8801	00100010	Bit5:Only with Y-axis
14701	00000000	
14702	00000000	
14706	20	VERTICAL
14707	0	Workpiece coordinate for sub-spindle
14855	00000001	Y-axis offset
14856	00001001	
27000	01010011	2A, S-TYPE
27001	00000000	
27103	00000001	(X,Z)
		VERTICAL MACHINE(M-TYPE)
8801	00100010	Bit5:Only with Y-axis
14701	00000000	
14702	00000000	
14706	20	VERTICAL
14707	0	Workpiece coordinate for sub-spindle
14717	3	Rotate Cs axis no.
14855	00000001	Y-axis offset
14856	00000001	
27000	01111111	M,MS,Y,SY-TYPE
27001	00000001	
27002	01000000	
27095	00000100	Polygon turning on
27103	10000010	(X,Z,C) M-Type
27301	3	Rotate axis no.

When the parameter No27103 is set, Please sure to push [F] key on NOW LOADING screen after Power ON. The necessary Parameters are set automatically

File Name	26MSB0029.PAR

* Non-printed Parameters = "0"

PARA NO	VALUE
N00000	L1 P00000010
	L2 P00000110
N00020	P4
N00100	P00001000
N00101	P10000001
N00102	P2
N00103	P10
N00111	P10000001
N00113	P10
N00121	P00000001
N00122	P2
N00123	P12
N00138	P10000001
N00980	L1 P1
	L2 P1
N00981	A1 P1
	A2 P1
	A3 P1
	A4 P1
	A5 P2
N00982	S1 P1
	S2 P1
	S3 P2
N01002	L1 P00000001
	L2 P00000001
N01005	A1 P00000011
	A2 P00000011
	A3 P00000001
	A4 P00000011
	A5 P00000001
N01006	A1 P00001000
	A3 P00000001
	A5 P00000001
N01008	A3 P00000101
	A5 P00000101
N01015	L1 P00010000
	L2 P00010000
N01020	A1 P88
	A2 P90
	A3 P67
	A4 P66
	A5 P67
N01022	A1 P1
	A2 P3
	A3 P5
	A4 P7
	A5 P5
N01023	A1 P1
	A2 P2
	A3 P-1
	A4 P3
	A5 P-3
N01201	L1 P00000101
	L2 P00000101
N01203	L1 P00000001
	L2 P00000001
N01240	A1 P402.0
	A2 P956.0
N01250	A1 M402.0
	A2 M956.0
N01260	A3 P360.0
	A5 P360.0
N01280	L1 P1480
	L2 P1480
N01300	L1 P10000000
	L2 P10000000
N01301	L1 P10000000
	L2 P10000000
N01320	A1 P406.0
	A2 P966.0
	A3 P999999.0
	A4 P10.0
	A5 P999999.0
N01321	A1 P-114.0
	A2 P136.0
	A3 P-999999.0
	A4 P-820.0
	A5 P-999999.0
N01401	L1 P01010001
	L2 P01010001
N01410	L1 P1200.0
	L2 P1200.0
N01420	A1 P30000.0
	A2 P30000.0
	A3 P72000.0
	A4 P30000.0
	A5 P72000.0
N01421	A1 P400.0
	A2 P400.0
	A3 P500.0
	A4 P400.0
	A5 P500.0
N01423	A1 P1000.0
	A2 P1000.0
	A3 P720.0
	A4 P1000.0
	A5 P720.0
N01424	A1 P30000.0
	A2 P30000.0
	A3 P72000.0
	A4 P30000.0
	A5 P72000.0
N01425	A1 P200.0
	A2 P200.0
	A3 P200.0
	A4 P200.0
	A5 P200.0
N01427	A1 P100.0
	A2 P100.0
	A3 P100.0
	A4 P100.0
	A5 P100.0
N01430	A1 P14000.0
	A2 P14000.0
	A3 P72000.0
	A4 P14000.0
	A5 P72000.0
N01432	A1 P16000.0
	A2 P16000.0
	A3 P72000.0
N01434	A1 P100.0
	A2 P100.0
	A3 P100.0
	A4 P100.0
	A5 P100.0
N01466	L1 P5000.0
	L2 P5000.0
N01601	L1 P00110000
	L2 P00110000
N01603	L1 P00010000
	L2 P00010000
N01610	A1 P00100001
	A2 P00100001
	A3 P00000001
	A4 P00100001
	A5 P00000001
N01620	A1 P200
	A2 P200
	A3 P240
	A4 P200
	A5 P240
N01621	A1 P32
	A2 P32
	A3 P40
	A4 P32
	A5 P40
N01622	A1 P80
	A2 P80
	A3 P80
	A4 P80
	A5 P80
N01624	A1 P32
	A2 P32
	A3 P32
	A4 P32
	A5 P32
N01625	A1 P10.0
	A2 P10.0
	A3 P10.0
	A4 P10.0
	A5 P10.0
N01626	A1 P64
	A2 P64
	A3 P64
	A4 P64
	A5 P64
N01627	A1 P80.0
	A2 P80.0
	A3 P80.0
	A4 P80.0
	A5 P80.0
N01660	A1 P500.0
	A2 P500.0
	A3 P500.0
N01722	A1 P20
	A2 P20
	A4 P20
N01737	A1 P1000.0
	A2 P1000.0
	A3 P1000.0
N01769	A1 P24
	A2 P24
	A3 P24
	A5 P24
N01783	A1 P500.0
	A2 P500.0
	A3 P500.0
N01800	L1 P00011010
	L2 P00011010
N01801	L1 P00110000
	L2 P00110000
N01803	L1 P00010011
	L2 P00010011
N01804	L1 P01000000
	L2 P01000000
N01815	A1 P00110000
	A2 P00110000
	A4 P00110000
N01820	A1 P20
	A2 P20

PARA NO	VALUE
	A3 P2
	A4 P20
	A5 P2
N01821	A1 P100000
	A2 P100000
	A4 P100000
N01825	A1 P3000
	A2 P3000
	A3 P3000
	A4 P3000
	A5 P3000
N01826	A1 P10000
	A2 P10000
	A3 P1000
	A4 P10000
	A5 P1000
N01827	A1 P200
	A2 P200
	A3 P10
	A4 P200
	A5 P10
N01828	A1 P400000
	A2 P400000
	A3 P90000
	A4 P400000
	A5 P90000
N01829	A1 P5000
	A2 P5000
	A3 P9999
	A4 P5000
	A5 P9999
N01832	A1 P10000
	A2 P10000
	A3 P9999
	A4 P10000
	A5 P9999
N01836	A1 P200
	A2 P200
	A3 P20
	A4 P200
	A5 P20
N01844	A1 P13357
	A2 P5973
	A4 P46014
N01850	A1 P-39940
	A2 P21600
	A4 P-17780
N01851	A1 P60
	A2 P110
	A4 P50
	A5 P17
N01852	A1 P40

PARA NO	VALUE
	A2 P80
	A4 P30
	A5 P17
N01860	A1 P21227264
	A2 P41806380
	A4 P10840302
	A5 P-3078750
N01861	A5 P-1
N01880	L1 P64
	L2 P64
N01881	A1 P1
	A2 P2
	A4 P3
N02000	A1 P00001010
	A2 P00001010
	A4 P00001010
N02003	A1 P00101000
	A2 P00101000
	A4 P00101000
N02004	A1 P00000011
	A2 P00000011
	A3 P01000110
	A4 P00000011
	A5 P01000110
N02005	A1 P01000010
	A2 P01000010
	A3 P00000010
	A4 P01000010
	A5 P00000010
N02006	A3 P01000100
	A5 P01000100
N02007	A4 P10000000
N02009	A1 P01000000
	A2 P01000000
	A4 P01000000
N02011	A1 P00100000
	A2 P00100000
	A3 P00100000
	A4 P00100000
	A5 P00100000
N02015	A1 P00100000
	A2 P00100000
	A4 P00100000
N02016	A1 P00001001
	A2 P00001001
	A4 P00001001
N02017	A1 P10000000
	A2 P10000000
	A4 P10000000
N02020	A1 P293
	A2 P297
	A4 P293

PARA NO	VALUE
N02021	A1 P257
	A2 P257
	A4 P257
N02022	A1 P111
	A2 P-111
	A4 P111
N02023	A1 P8192
	A2 P8192
	A4 P8192
N02024	A1 P12500
	A2 P12500
	A4 P12500
N02040	A1 P1701
	A2 P1701
	A3 P687
	A4 P1701
	A5 P687
N02041	A1 P-6391
	A2 P-6391
	A3 P-2510
	A4 P-6391
	A5 P-2510
N02042	A1 P-1315
	A2 P-1315
	A3 P-2617
	A4 P-1315
	A5 P-2617
N02043	A1 P192
	A2 P192
	A3 P107
	A4 P192
	A5 P107
N02044	A1 P-1721
	A2 P-1721
	A3 P-955
	A4 P-1721
	A5 P-955
N02046	A1 P-8235
	A2 P-8235
	A3 P-8235
	A4 P-8235
	A5 P-8235
N02047	A1 P2750
	A2 P2700
	A3 P3972
	A4 P2700
	A5 P3972
N02048	A1 P200
	A2 P150
N02050	A1 P3559
	A2 P3559
	A4 P3559

PARA NO	VALUE
N02051	A1 P3329
	A2 P3329
	A4 P3329
N02053	A1 P21
	A2 P21
	A3 P21
	A4 P21
	A5 P21
N02054	A1 P1894
	A2 P1894
	A3 P3787
	A4 P1894
	A5 P3787
N02055	A1 P319
	A2 P319
	A3 P319
	A4 P319
	A5 P319
N02056	A3 P2500
	A5 P2500
N02057	A1 P-8199
	A2 P-8199
	A3 P2200
	A4 P-8199
	A5 P2200
N02058	A1 P-747
	A2 P-747
	A3 P70
	A4 P-747
	A5 P70
N02059	A3 P5
	A5 P5
N02060	A1 P7282
	A2 P7282
	A3 P7282
	A4 P7282
	A5 P7282
N02061	A3 P120
	A5 P120
N02062	A1 P32520
	A2 P32520
	A3 P32686
	A4 P32520
	A5 P32686
N02063	A1 P3101
	A2 P3101
	A3 P1031
	A4 P3101
	A5 P1031
N02064	A1 P4
	A2 P4
	A3 P4

PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE
	A4 P4		A2 P4500		A4 P38	N03030	L1 P3
	A5 P4		A4 P4000	N02164	A1 P6924		L2 P3
N02065	A1 P9224	N02105	A1 P517		A2 P6924	N03031	L1 P5
	A2 P9224		A2 P517		A4 P6924		L2 P5
	A3 P3059		A3 P205	N02165	A1 P85	N03032	L1 P4
	A4 P9224		A4 P517		A2 P85		L2 P4
	A5 P3059		A5 P205		A3 P25	N03103	P00001000
N02069	A1 P100	N02106	A4 P150		A4 P85	N03104	L1 P11111001
	A2 P100	N02107	A1 P150		A5 P25		L2 P11111001
	A4 P100		A2 P150	N02177	A1 P80	N03105	L1 P00000101
N02071	A1 P50		A4 P100		A2 P80		L2 P00000101
	A2 P40	N02110	A1 P32		A4 P80	N03106	P00010100
N02074	A1 P8192		A2 P32	N02200	A1 P00001100	N03107	L1 P00010000
	A2 P8192		A3 P2568		A2 P00001100		L2 P00010000
	A4 P8192		A4 P32		A4 P00001100	N03108	L1 P01000000
N02082	A1 P100		A5 P2568	N02202	A1 P00000110		L2 P01000000
	A2 P50	N02111	A3 P6244		A2 P00000110	N03111	L1 P11100011
	A4 P100		A5 P6244		A4 P00000100		L2 P11100011
N02083	A1 P200	N02113	A1 P640	N02203	A1 P00000100	N03112	P00000100
	A2 P200		A2 P545		A2 P00000100	N03117	L1 P00000010
	A4 P200		A4 P500		A4 P00010100		L2 P00000010
N02084	A1 P1	N02116	A1 P5	N02204	A1 P10000000	N03129	L1 P00000011
	A2 P1		A2 P5		A2 P00000100	N03131	A1 P32
	A4 P1	N02127	A1 P2388		A4 P00010100		A2 P32
N02085	A1 P10		A2 P2388	N02207	A1 P00001000		A3 P32
	A2 P10		A3 P1700		A2 P00001000		A4 P32
	A4 P10		A4 P2388		A4 P00001000		A5 P32
N02086	A1 P2085		A5 P1700	N02210	A1 P01100000	N03151	L1 P1
	A2 P2131	N02128	A1 P2000		A2 P01100000		L2 P1
	A3 P22914		A2 P2000		A4 P01100000	N03152	L1 P2
	A4 P2085		A3 P3333	N02214	A1 P00010000		L2 P2
	A5 P19980		A4 P2000		A2 P00010000	N03153	L1 P3
N02087	A1 P960		A5 P3333		A4 P00010000		L2 P3
N02092	A1 P5000	N02129	A1 P2568		A5 P00010000	N03160	P4
	A2 P5000		A2 P2568	N02270	A4 P01000000	N03161	P5
	A4 P5000		A3 P2578	N02310	A1 P1817	N03162	P6
N02098	A3 P5145		A4 P2568		A2 P1817	N03192	P10000000
	A5 P5145		A5 P2578		A3 P1817	N03193	P00000100
N02099	A1 P400	N02142	A1 P4900		A4 P1817	N03195	P10000000
	A2 P400		A2 P4500		A5 P1817	N03201	L1 P01000000
	A3 P400		A4 P3800	N02359	A1 P10		L2 P01000000
	A4 P400	N02144	A1 P9500		A2 P10	N03202	L1 P00010000
	A5 P400		A2 P9500		A4 P10		L2 P00010000
N02102	A1 P15000		A4 P9500	N02374	A1 P64	N03203	L1 P11000000
	A2 P15000	N02145	A1 P200	N03003	L1 P00000001		L2 P11000000
	A3 P15000		A2 P200		L2 P00000001	N03205	P00010000
	A4 P15000		A4 P200	N03010	L1 P16	N03206	P01000000
	A5 P15000	N02162	A1 P32765		L2 P16	N03282	P01110110
N02103	A1 P325		A2 P32765	N03011	L1 P16	N03291	L1 P00000001
	A2 P325		A4 P32765		L2 P16		L2 P00000001
	A4 P325	N02163	A1 P38	N03017	L1 P10	N03301	L1 P10000000
N02104	A1 P4500		A2 P38		L2 P10		L2 P10000000

PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE
N03321	P170	N03729	S1 P00000001		S3 P00000010	N04025	S1 P50
N03322	P138		S2 P00000001	N04001	S1 P00000010		S2 P50
N03323	P105		S3 P00000001		S2 P00000010		S3 P50
N03324	P119	N03730	S1 P1000		S3 P00000010	N04026	S1 P83
N03325	P144		S2 P1000	N04002	S1 P00000011		S2 P83
N03326	P150		S3 P1000		S2 P00000001		S3 P83
N03327	P177	N03732	L1 P10		S3 P00000011	N04027	S1 P95
N03328	P99		L2 P10	N04003	S1 P01000000		S2 P95
N03329	P214	N03740	L1 P20		S3 P01001100		S3 P95
N03330	P203		L2 P20	N04006	S1 P00000010	N04029	S1 P100
N03331	P200	N03743	S1 P2823		S2 P00000010		S2 P100
N03332	P211		S2 P5000		S3 P00000010		S3 P100
N03333	P206		S3 P4585	N04008	S3 P00010000	N04032	S1 P350
N03334	P207	N03744	S1 P3600	N04010	S1 P00000001		S2 P950
N03335	P208		S2 P5000		S2 P00000001		S3 P350
N03336	P99		S3 P3600		S3 P00000001	N04033	S1 P10
N03400	L1 P00010000	N03771	L1 P50	N04011	S1 P00011010		S2 P10
	L2 P00010000		L2 P50		S2 P00011001		S3 P10
N03404	L1 P00100000	N03772	S1 P3600		S3 P00011010	N04034	S1 P696
	L2 P00100000		S2 P5000	N04012	S1 P10000000	N04035	S1 P10
N03410	L1 M0.1		S3 P4500		S2 P10000010		S2 P10
	L2 M0.1	N03775	L1 P11		S3 P10000010		S3 P10
N03411	L1 P304		L2 P11	N04013	S1 P00101000	N04036	S1 P100
	L2 P304	N03781	S1 P11		S2 P00001100		S2 P100
N03412	L1 P303		S2 P12		S3 P00001100		S3 P100
	L2 P303		S3 P13	N04014	S1 P00001000	N04037	S1 P200
N03413	L1 P326	N03900	L1 P1	N04015	S1 P00000111		S2 P200
	L2 P326		L2 P1		S2 P00000111		S3 P200
N03453	L1 P00000001	N03901	L1 P3000		S3 P00000111	N04038	S1 P100
	L2 P00000001		L2 P3000	N04016	S1 P10001000		S2 P1000
N03457	L1 P00001011	N03902	L1 P3000		S2 P10000000		S3 P100
	L2 P00001011		L2 P3000		S3 P00001000	N04040	S1 P10
N03701	L1 P00010000	N03903	L1 P3000	N04017	S1 P10000000		S2 P10
N03703	P00011001		L2 P3000		S3 P10000000		S3 P10
N03706	L1 P00000100	N03904	L1 P3000	N04018	S2 P01000000	N04041	S1 P10
N03708	L1 P00000001		L2 P3000	N04019	S1 P00000100		S2 P10
	L2 P00000001	N03910	L1 P2		S2 P00000100		S3 P10
N03709	L1 P00001100		L2 P2		S3 P00000100	N04042	S1 P10
	L2 P00001100	N03911	L1 P3000	N04020	S1 P6000		S2 P10
N03713	P01000000		L2 P3000		S2 P10000		S3 P10
N03716	S1 P00000001	N03912	L1 P3000		S3 P8000	N04043	S1 P10
	S2 P00000001		L2 P3000	N04021	S1 P220		S2 P10
	S3 P00000001	N03913	L1 P3000		S3 P220		S3 P10
N03717	S1 P1		L2 P3000	N04022	S1 P150	N04044	S1 P30
	S2 P2	N03914	L1 P3000		S2 P150		S2 P10
	S3 P3		L2 P3000		S3 P150		S3 P10
N03718	S1 P1	N03920	L1 P5	N04023	S1 P30	N04045	S1 P30
	S2 P2	N03921	L1 P3000		S2 P30		S2 P10
	S3 P3	N03922	L1 P3000		S3 P30		S3 P30
N03720	S1 P4096	N03923	L1 P3000	N04024	S1 P75	N04046	S1 P30
	S2 P4096	N03924	L1 P3000		S2 P75		S2 P30
	S3 P4096	N04000	S1 P00001010		S3 P75		S3 P30

PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE
N04047	S1 P40		S2 P100		S3 P30	N04110	S1 P1052
	S2 P30		S3 P100	N04085	S1 P100		S2 P474
	S3 P40	N04065	S1 P2500		S2 P85		S3 P754
N04048	S1 P10		S2 P1000		S3 P100	N04111	S1 P312
	S2 P10		S3 P2500	N04086	S1 P100		S2 P175
	S3 P10	N04066	S1 P1000		S2 P100		S3 P260
N04049	S1 P10		S2 P2500		S3 P100	N04112	S1 P200
	S2 P10		S3 P1000	N04087	S1 P115		S2 P200
	S3 P10	N04067	S1 P2500		S2 P115		S3 P200
N04050	S1 P10		S2 P2500		S3 P115	N04113	S1 P170
	S2 P10		S3 P2500	N04088	S1 P75		S2 P992
	S3 P10	N04068	S1 P2500		S2 P75		S3 P620
N04051	S1 P10		S2 P1000		S3 P75	N04115	S1 P100
	S2 P10		S3 P2500	N04089	S1 P200		S2 P100
	S3 P10	N04069	S1 P3000		S2 P200		S3 P100
N04052	S1 P60		S2 P3000		S3 P200	N04116	S1 P4500
	S2 P10		S3 P3000	N04090	S1 P90		S2 P9300
	S3 P30	N04070	S1 P3000		S2 P90		S3 P8803
N04053	S1 P50		S2 P3000		S3 P90	N04117	S1 P90
	S2 P50		S3 P3000	N04091	S1 P100		S2 P90
	S3 P50	N04071	S1 P3000		S2 P100		S3 P90
N04054	S1 P250		S2 P3000		S3 P100	N04118	S1 P100
	S2 P50		S3 P3000	N04092	S1 P70		S2 P100
	S3 P50	N04072	S1 P3000		S2 P100		S3 P100
N04055	S1 P120		S2 P3000		S3 P100	N04119	S1 P56
	S2 P50		S3 P3000	N04094	S1 P1000		S2 P10
	S3 P120	N04074	S1 P100		S3 P800		S3 P15
N04056	S1 P2121		S3 P100	N04097	S1 P10	N04121	S1 P5
	S2 P1000	N04075	S1 P10		S3 P10		S2 P5
	S3 P1744		S2 P10	N04099	S1 P300		S3 P5
N04057	S1 P1000		S3 P10		S3 P300	N04123	S1 P30
	S2 P1000	N04076	S1 P33	N04100	S1 P590		S2 P30
	S3 P1000		S2 P33		S2 P1850		S3 P30
N04058	S1 P2121		S3 P33		S3 P1550	N04127	S1 P143
	S2 P2000	N04077	S2 P1268	N04101	S1 P100		S2 P440
	S3 P1744	N04078	S1 P200		S2 P90		S3 P164
N04059	S1 P2121		S2 P200		S3 P100	N04128	S1 P85
	S2 P1000		S3 P200	N04102	S1 P835		S2 P90
	S3 P1744	N04080	S1 P65		S2 P2767		S3 P109
N04060	S1 P1000		S2 P14180		S3 P2630	N04130	S1 P25700
	S2 P3000		S3 P66	N04103	S1 P80		S2 P25700
	S3 P1000	N04081	S1 P20		S2 P90		S3 P25700
N04061	S1 P1000		S2 P20		S3 P60	N04133	S1 P412
	S2 P1000		S3 P20	N04104	S1 P3500		S2 P300
	S3 P1000	N04082	S1 P10		S2 P4500		S3 P310
N04062	S1 P1000		S2 P10		S3 P6000	N04134	S1 P130
	S2 P1000		S3 P10	N04106	S1 P6500		S2 P110
	S3 P1000	N04083	S1 P30		S2 P13000		S3 P130
N04063	S1 P1000		S2 P30		S3 P6000	N04135	S1 P-61170
	S2 P1000		S3 P30	N04109	S1 P25	N04136	S1 P30
	S3 P1000	N04084	S1 P30		S2 P25	N04137	S1 P30
N04064	S1 P100		S2 P30		S3 P25	N04138	S1 P430

PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE
N04139	S1 P100		L2 M0.5		S3 P2500		A4 P32767
N04140	S1 P713	N05014	L1 M0.2	N05263	S1 P4000		A5 P32767
N04141	S1 P56		L2 M0.2		S2 P3000	N05352	A1 P32767
N04142	S1 P5000	N05015	L1 P93.16		S3 P3000		A2 P32767
N04143	S1 P7000	N05016	L1 P122.96	N05273	S1 P4000		A3 P32767
N04145	S1 P25	N05017	L1 P428.169		S2 P3000		A4 P32767
N04146	S1 P2155	N05018	L1 P443.069		S3 P3000		A5 P32767
N04147	S1 P655	N05024	L1 P128	N05283	S1 P2500	N05354	A1 P32767
N04148	S1 P200	N05028	L1 P2		S2 P2500		A2 P32767
N04149	S1 P200		L2 P2		S3 P2500		A3 P32767
N04151	S1 P100	N05053	L1 P32	N05300	A1 P200		A4 P32767
N04152	S1 P5200		L2 P32		A2 P200		A5 P32767
N04153	S1 P90	N05101	L1 P00000100		A3 P20	N05356	A1 P32767
N04154	S1 P100		L2 P00000100		A4 P200		A2 P32767
N04157	S1 P5	N05102	L1 P00000100		A5 P20		A3 P32767
	S3 P5	N05105	L1 P00000110	N05301	S1 P20		A4 P32767
N04161	S1 P25700	N05107	L1 P00000001		S2 P20		A5 P32767
N04165	S1 P48	N05108	L1 P00001010		S3 P20	N05460	L1 P1
N04166	S1 P17232	N05110	L1 P89	N05302	A1 P200		L2 P1
N04171	S2 P1		L2 P89		A2 P200	N05461	L1 P3
N04172	S2 P1	N05111	L1 P100		A3 P20		L2 P3
N04173	S2 P2		L2 P100		A4 P200	N05463	L1 P100
N04174	S2 P1	N05112	L1 P3		A5 P20	N06000	L1 P10000000
N04191	S1 P00000111		L2 P3	N05304	A1 P200		L2 P10000000
	S2 P00000111	N05113	L1 P4		A2 P200	N06001	L1 P00000001
	S3 P00000111		L2 P4		A3 P20		L2 P00000001
N04215	S1 P2000	N05114	L1 M1.0		A4 P200	N06008	L1 P00000001
N04320	S2 P2000		L2 M1.0		A5 P20		L2 P00000001
N04340	S1 P500	N05132	L1 M3.5	N05306	A1 P200	N06009	L1 P00001000
	S2 P500	N05133	L1 M0.5		A2 P200		L2 P00001000
	S3 P500	N05140	L1 M0.1		A3 P200	N06050	L1 P300
N04342	S1 P200		L2 M0.1		A4 P200		L2 P300
N04344	S1 P9500	N05141	L1 M0.05		A5 P200	N06051	L1 P301
	S2 P9500	N05142	L1 P1	N05310	A1 P32767		L2 P301
	S3 P9500	N05143	L1 P60		A2 P32767	N06052	L1 P350
N04406	S1 P240		L2 P60		A3 P32767		L2 P350
	S3 P240	N05145	L1 M0.5		A4 P32767	N06053	L1 P100
N04800	P00100000	N05146	L1 M0.5		A5 P32767	N06055	L1 P500
N04810	S1 P20	N05200	L1 P10100000	N05311	S1 P32767	N06056	L1 P600
	S2 P20		L2 P10100000		S2 P32767	N06057	L1 P700
	S3 P20	N05201	L1 P00000100		S3 P32767	N06058	L1 P800
N04811	S1 P30		L2 P00000100	N05312	A1 P32767	N06059	L1 P900
	S2 P30	N05203	L1 P00000100		A2 P32767	N06071	L1 P146
	S3 P30		L2 P00000100		A3 P32767		L2 P289
N04831	S3 P1	N05209	L1 P00000001		A4 P32767	N06072	L1 P147
N05002	L1 P01100000	N05210	L1 P29		A5 P32767		L2 P389
	L2 P01100000		L2 P29	N05313	S1 P32767	N06073	L2 P290
N05003	L1 P11000000	N05214	S1 P32767		S2 P32767	N06074	L1 P88
N05005	L1 P01100000		S2 P32767		S3 P32767		L2 P291
N05006	P00001010		S3 P32767	N05350	A1 P32767	N06076	L1 P289
N05010	L1 M0.05	N05243	S1 P2500		A2 P32767	N06077	L1 P389
N05013	L1 M0.5		S2 P2500		A3 P32767	N06083	L1 P5

PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE	PARA NO	VALUE
	L2 P5		L2 P5000	N12381	P20000	N14942	P150.0
N06084	L1 P465	N07631	L1 P10	N12382	P20180	N14943	P-70.0
	L2 P465		L2 P10	N12383	P20300	N14944	P930.0
N06241	L1 P20.0	N07632	L1 P1000	N12384	P20500	N14945	P802.0
	L2 P20.0		L2 P1000	N12385	P699	N14946	P120.0
N06251	L1 P3.0	N08002	L1 P01000000	N12386	P951	N14947	P-70.0
	L2 P3.0	N08010	A4 P1	N12388	P3600	N14948	P862.0
N06252	L1 P6.0	N08022	A4 P16000.0	N13115	P01110000	N14949	P732.0
	L2 P6.0	N08110	P900	N14000	A1 P10000000	N14950	P100.0
N06254	L1 P1.5	N08111	P999		A2 P10000000	N14951	P-70.0
	L2 P1.5	N08130	L1 P4		A3 P10000000	N27000	P01011111
N06255	L1 P3.0		L2 P1		A4 P10000000	N27001	P00000011
	L2 P3.0	N08131	P00000001		A5 P10000000	N27002	P00000010
N06286	A4 P00000001	N08132	P00000001	N14700	P00010000	N27004	P00000010
N06287	A4 P1000	N08133	P01011101	N14701	P00000010	N27005	L1 P89
N06510	L1 P4	N08134	P00000001	N14702	P00000011	N27006	L1 P90
	L2 P4	N08160	L1 P10000000	N14703	P01100001	N27007	P8000
N06710	L1 P54		L2 P10000000	N14704	P11110011	N27008	P8000
	L2 P54	N08162	A3 P00110000	N14706	L1 P16	N27011	L1 P189
N06750	L1 P126		A5 P00110000	N14707	L1 P16	N27012	L1 P190
	L2 P9788	N08168	P00000100	N14713	P255	N27040	P00001000
N06751	L1 P2880	N08169	A3 P00000011	N14714	P10	N27060	P00000010
N06800	L1 P00100000		A5 P00000011	N14715	P10	N27095	P00000100
	L2 P00100000	N08180	A5 P103	N14717	L1 P3	N27100	P00000010
N06804	L1 P00000010	N08183	A5 P103	N14720	P1	N27102	P10000110
N06813	L1 P128	N08650	P00110111	N14721	P7999	N27103	P00000010
	L2 P128	N08781	P64	N14722	P1	N27120	P00000110
N06912	L1 P1	N08801	L1 P00000010	N14723	P7999	N27170	P00000011
N06913	L1 P1	N08900	P00000001	N14794	L1 P00000010	N27301	L1 P3
N06914	L1 P1	N08911	L1 P10	N14850	P00000010	N27310	P00001001
N06932	L1 P-10.0		L2 P10	N14853	P10000000	N27311	P00000010
N06933	L1 P110.0	N09035	L1 P00000010	N14855	L1 P00000001	N27312	L1 P00000001
N06934	L1 P272.0	N09048	L1 P1	N14863	P10	N27335	P9
N06952	L1 P-197.0	N09049	L1 P1	N14864	P1	N27400	P00000001
N06953	L1 P-20.0	N09050	L1 P1	N14920	P1458.0	N27480	P00000001
N06954	L1 P110.0	N09051	L1 P1	N14921	P670.0		
N07113	L1 P100	N09052	L1 P1	N14922	P585.0		
	L2 P100	N09053	L1 P6000	N14923	P378.0		
N07114	L1 P1000	N09071	L1 P91	N14924	P1192.0		
	L2 P1000	N09072	L1 P40	N14925	P670.0		
N07117	L1 P200	N09800	P8	N14926	P390.0		
	L2 P200	N10334	P00000001	N14927	P315.0		
N07131	L1 P100	N11308	P00000010	N14928	P910.0		
N07132	L1 P1000	N11369	P01000000	N14929	P670.0		
N07310	A1 P1	N11375	P00000010	N14930	P325.0		
	A2 P3	N11501	L1 P00001000	N14931	P280.0		
	A3 P5	N11661	L1 M0.001	N14932	P780.0		
	A4 P2	N12300	P44	N14933	P670.0		
	A5 P1	N12301	P45	N14934	P290.0		
N07602	L1 P00100000	N12302	P46	N14935	P158.9		
	L2 P00100000	N12303	P-1	N14940	P1458.0		
N07621	L1 P5000	N12304	P-1	N14941	P930.0		