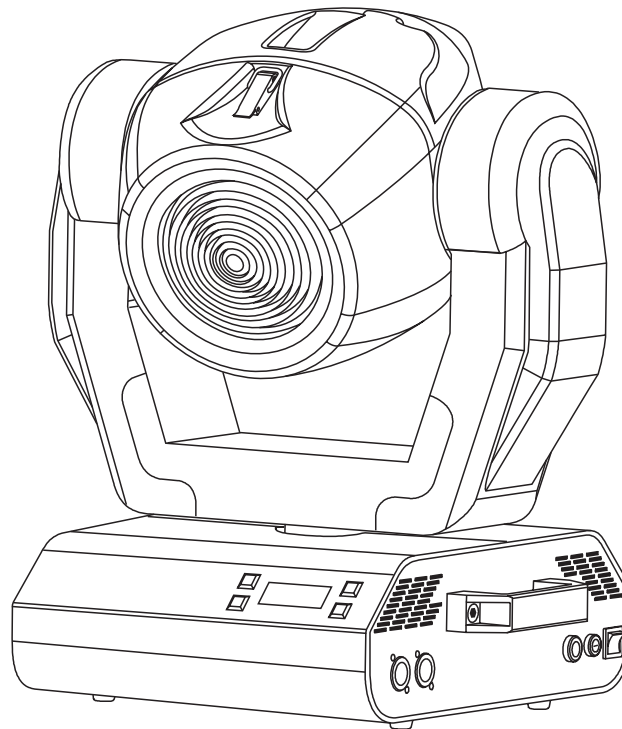
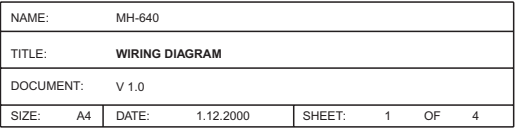
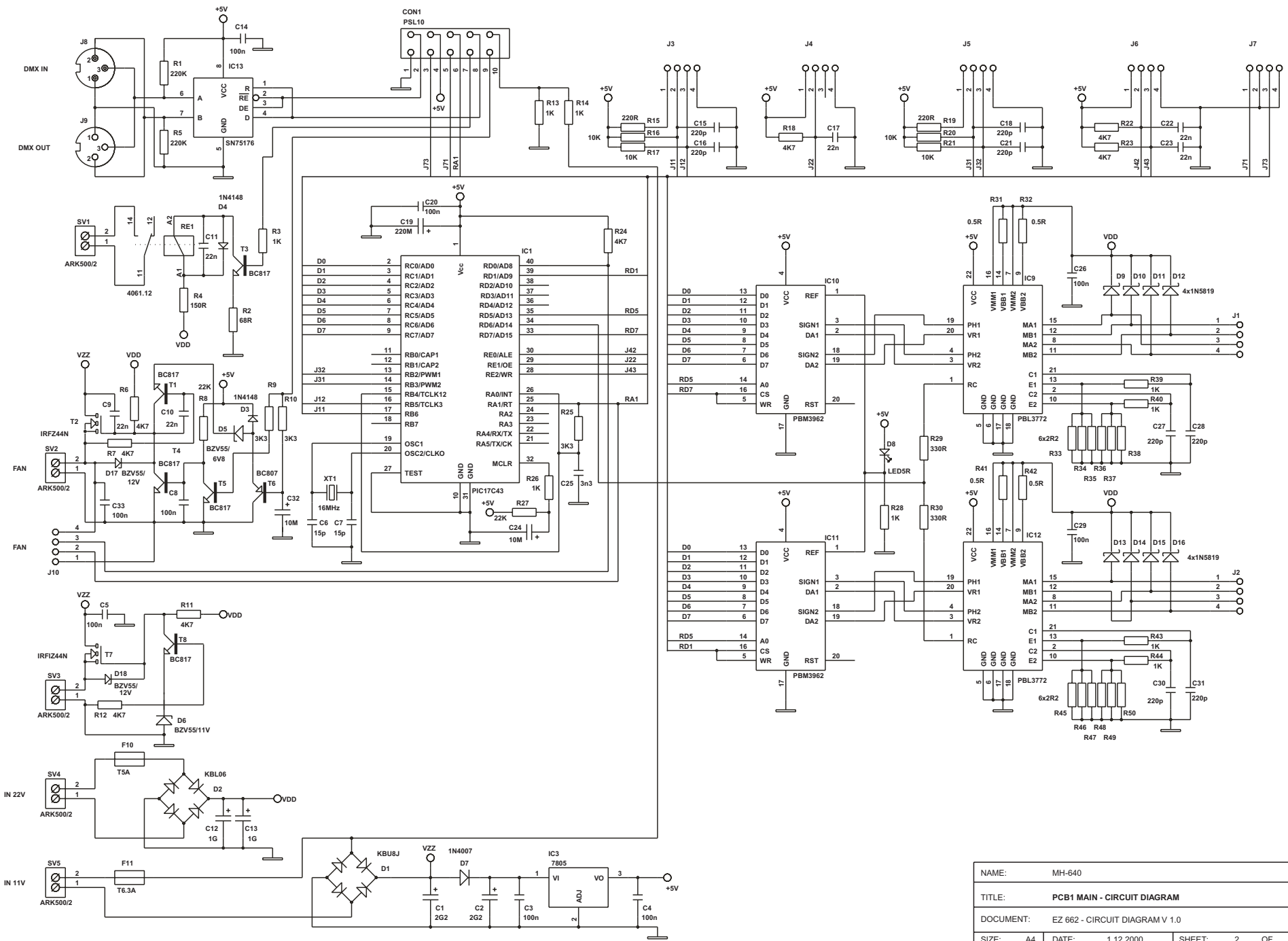


Service manual V 1.2



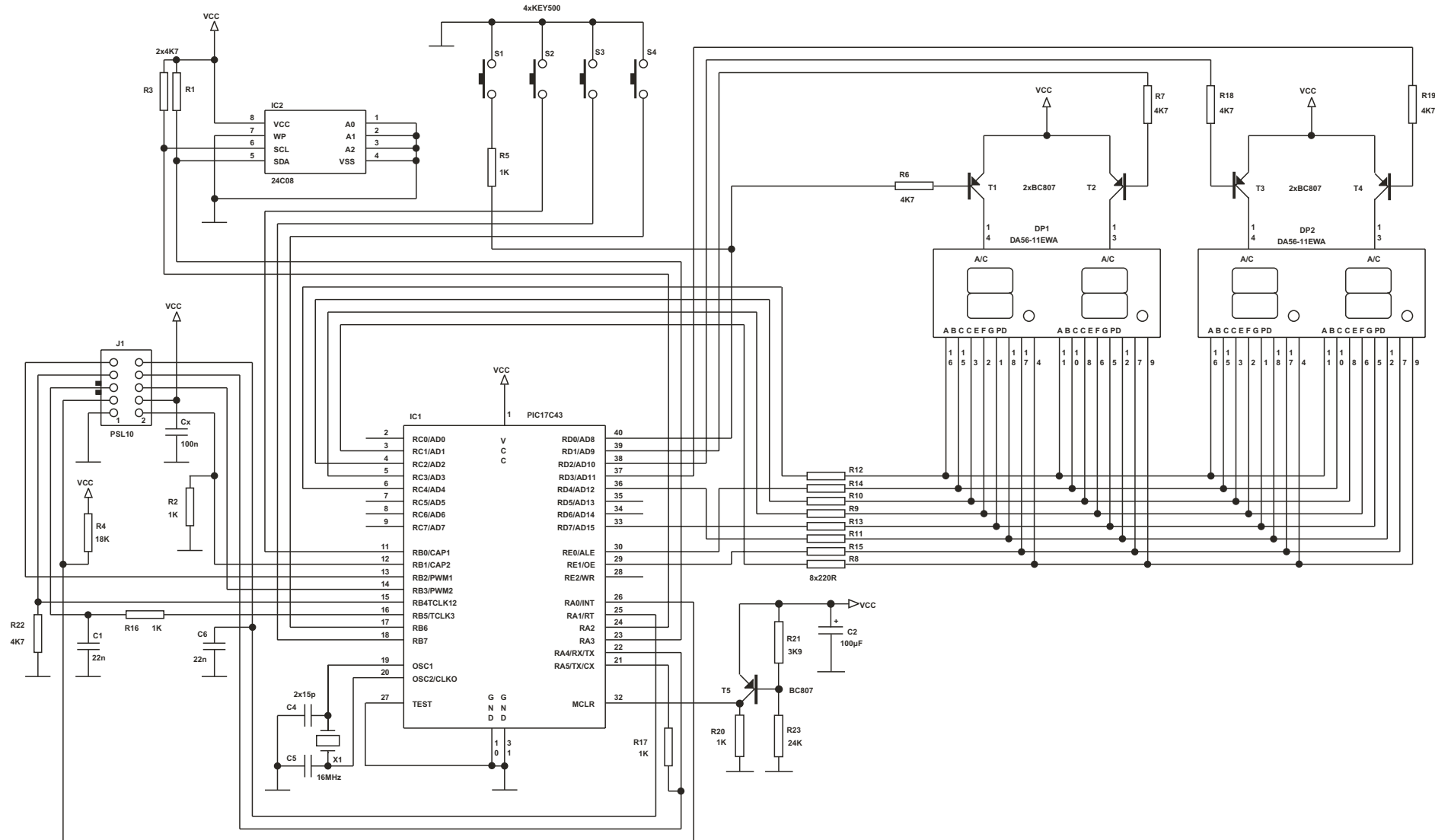
MH - 640 Washlight



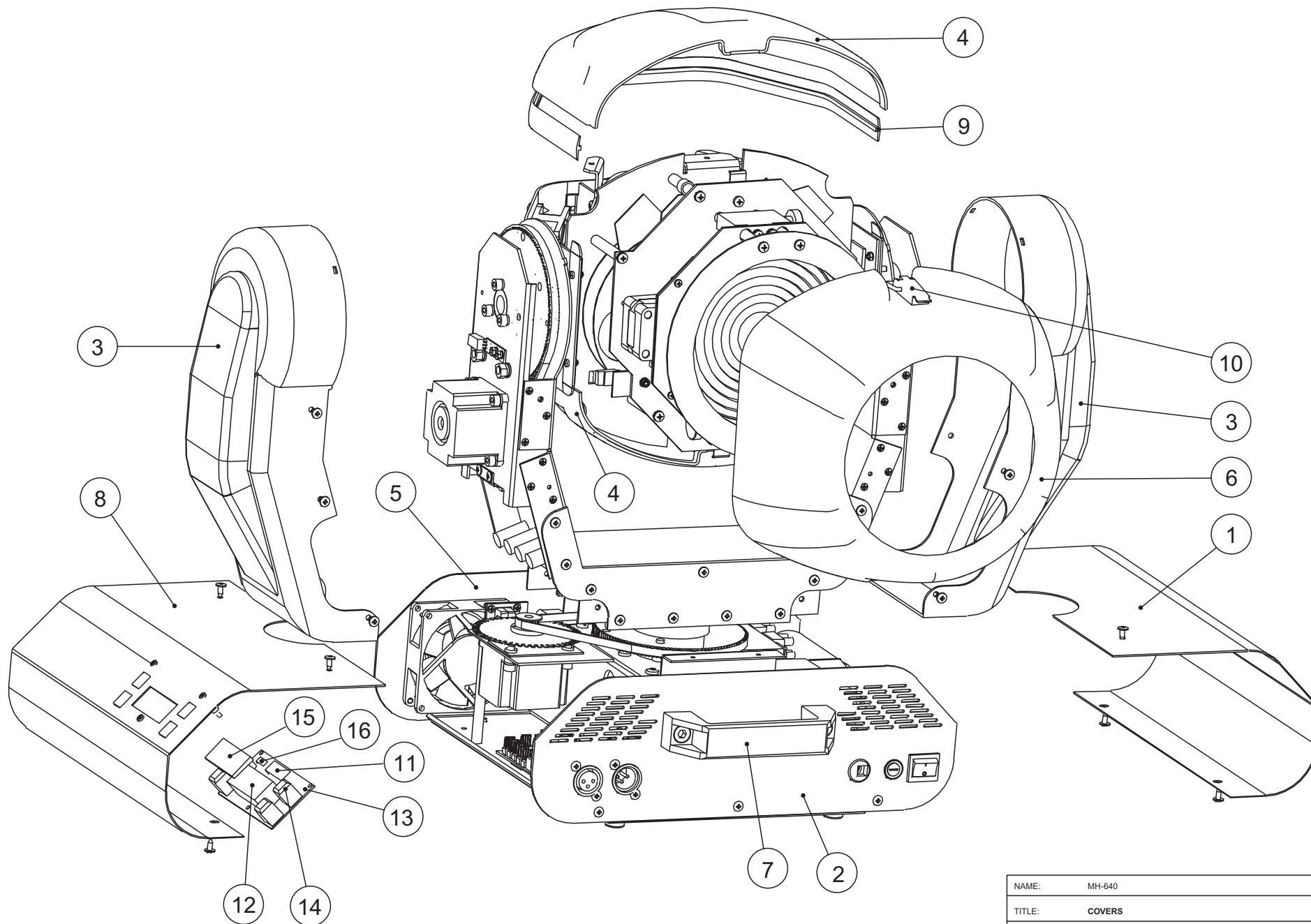


NAME:	MH-640
TITLE:	PCB1 MAIN - CIRCUIT DIAGRAM
DOCUMENT:	EZ 662 - CIRCUIT DIAGRAM V 1.0
SIZE:	A4
DATE:	1.12.2000
SHEET:	2 OF 4

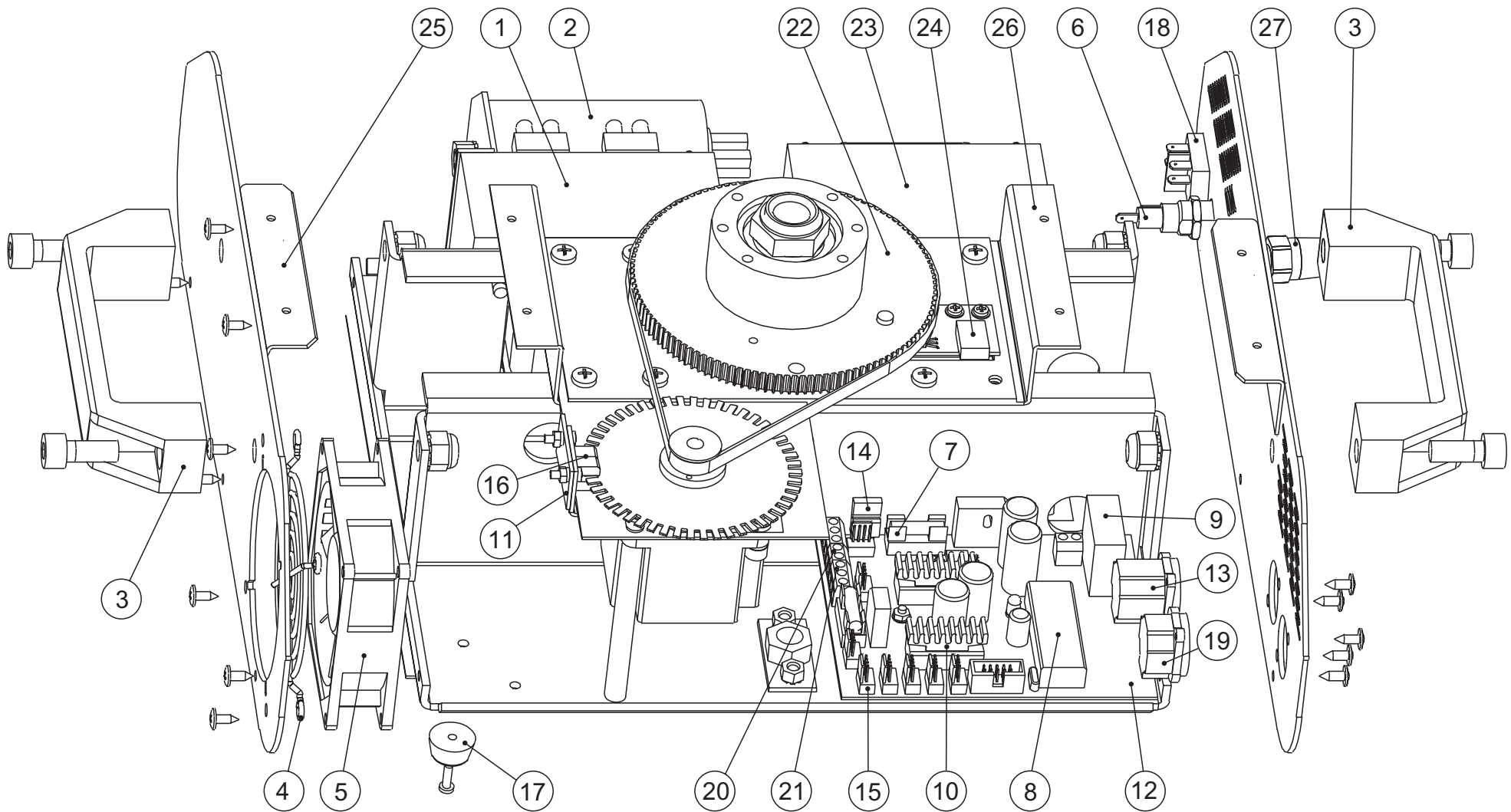
1. GND
2. DMX DIRECTION
3. LAMP SENSOR
4. VCC +5V
5. TERMISTOR 20 C=15k, 37 C=10k
6. INTERNAL DATA
7. LAMP ON/OFF
8. DMX DATA
9. FAN PWM OUT
10. 50Hz IN



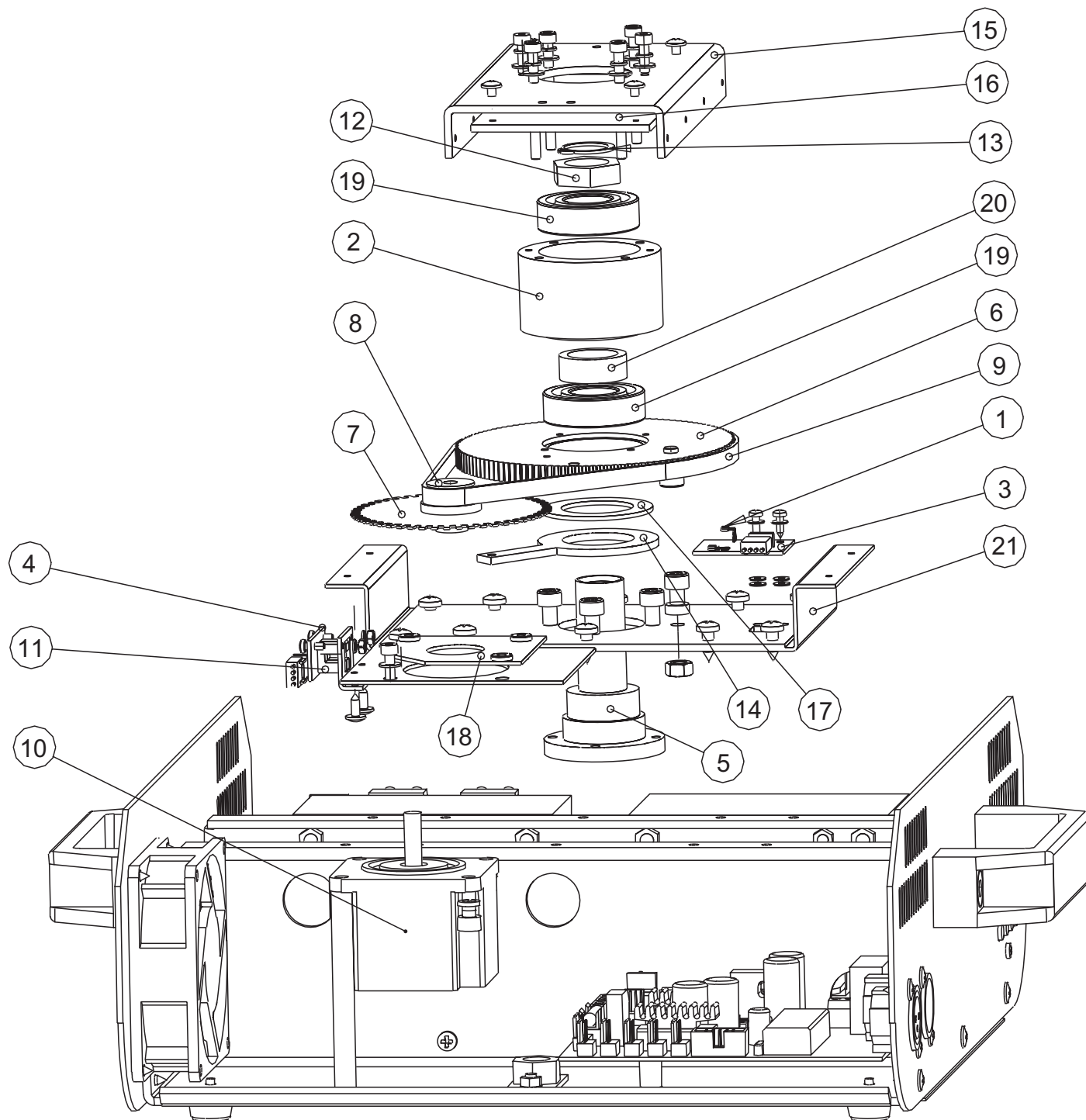
NAME:	MH-640
TITLE:	PCB4 DISPLAY - CIRCUIT DIAGRAM
DOCUMENT:	EZND2 DISPLAY - CIRCUIT DIAGRAM V 1.0
SIZE:	A4
DATE:	1.12.2000
SHEET:	4 OF 4



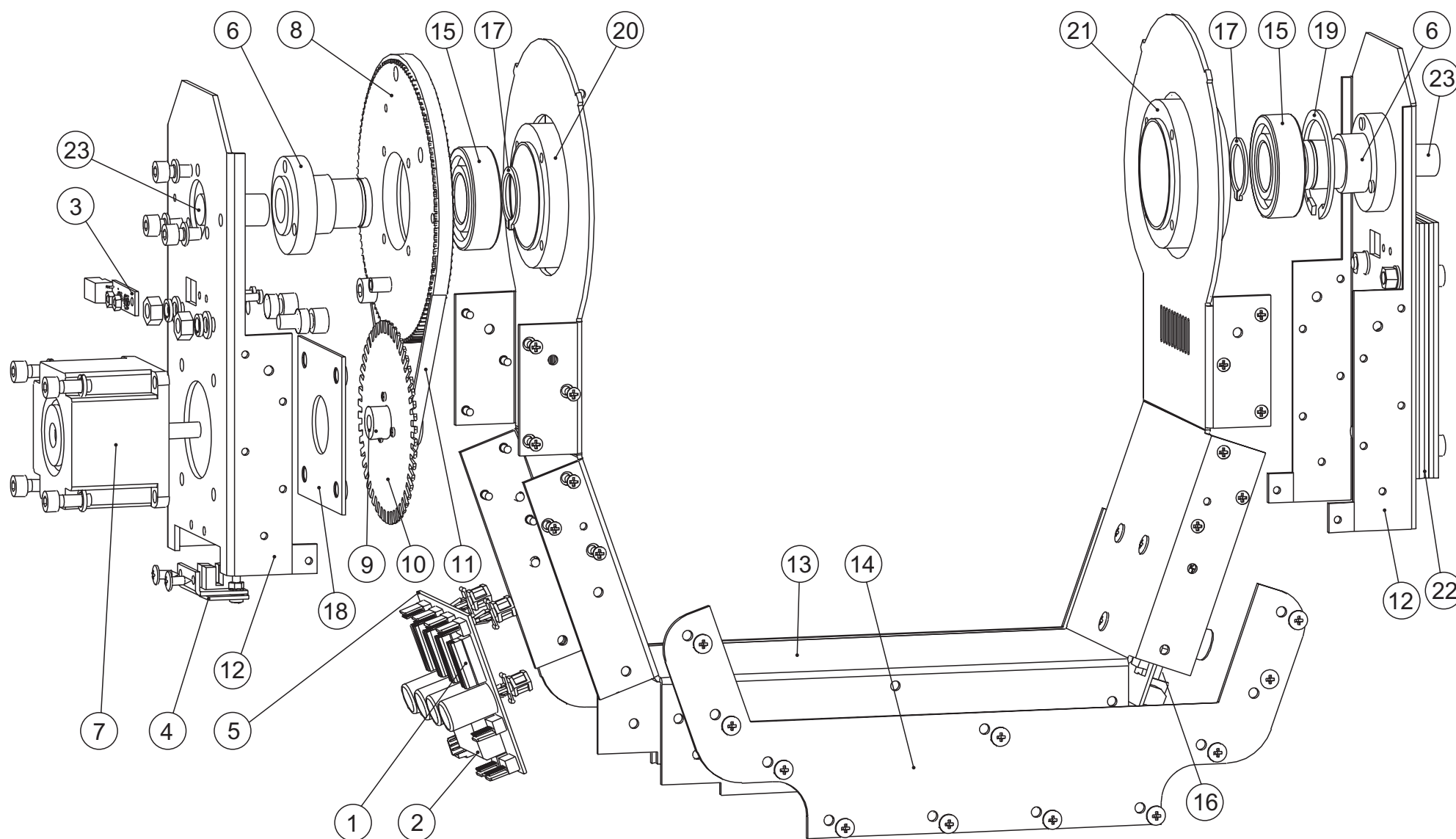
NAME:		MH-640		
TITLE:		COVERS		
DOCUMENT:		S01/00		
SIZE:	A4	DATE:	1.12.2000	SHEET: 1 OF 9



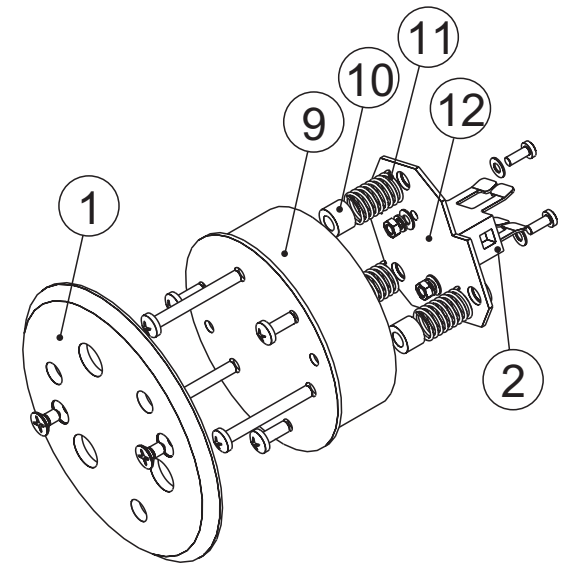
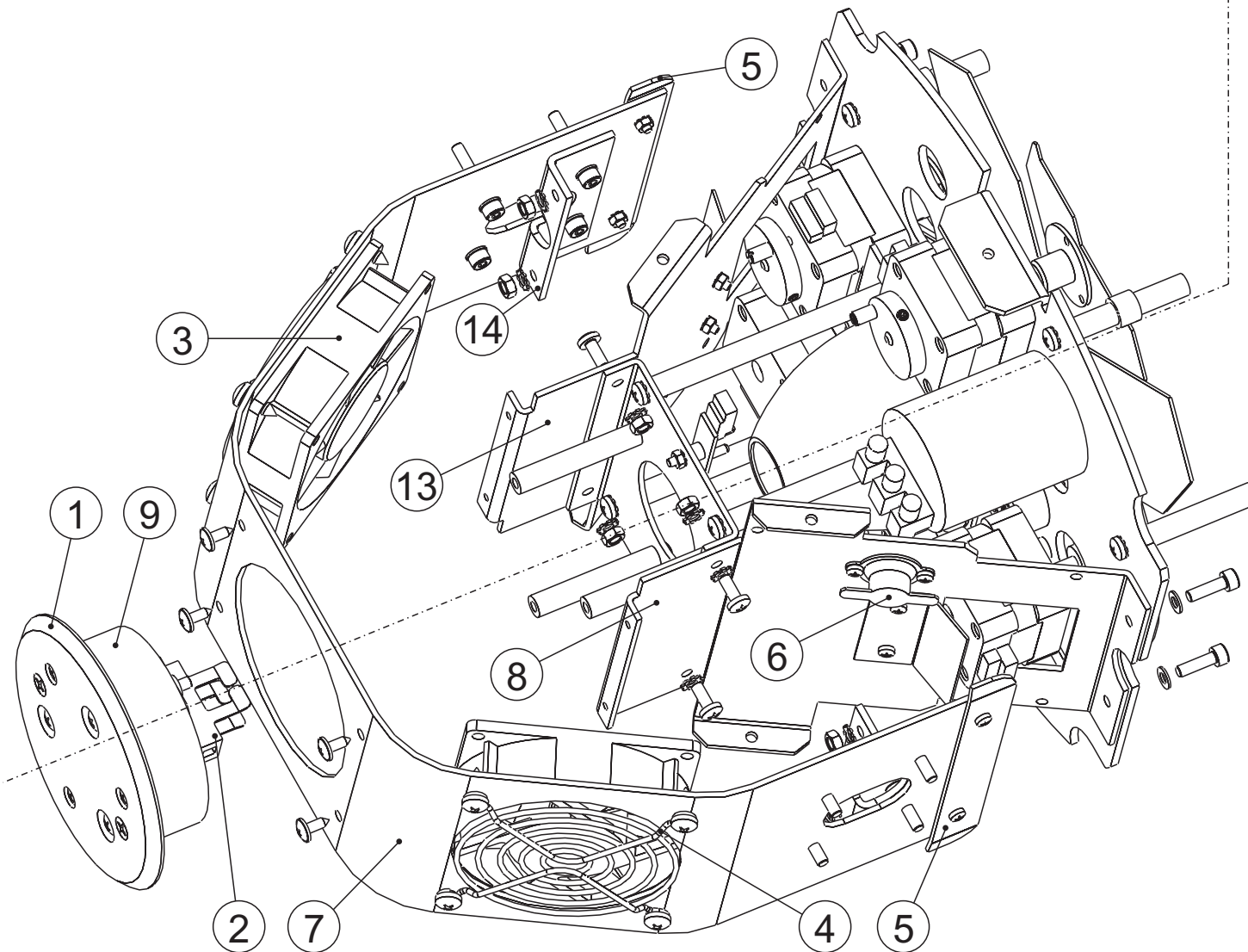
NAME:		MH-640		
TITLE:		BASE		
DOCUMENT:		S02/00		
SIZE:	A4	DATE:	1.12.2000	SHEET: 2 OF 9



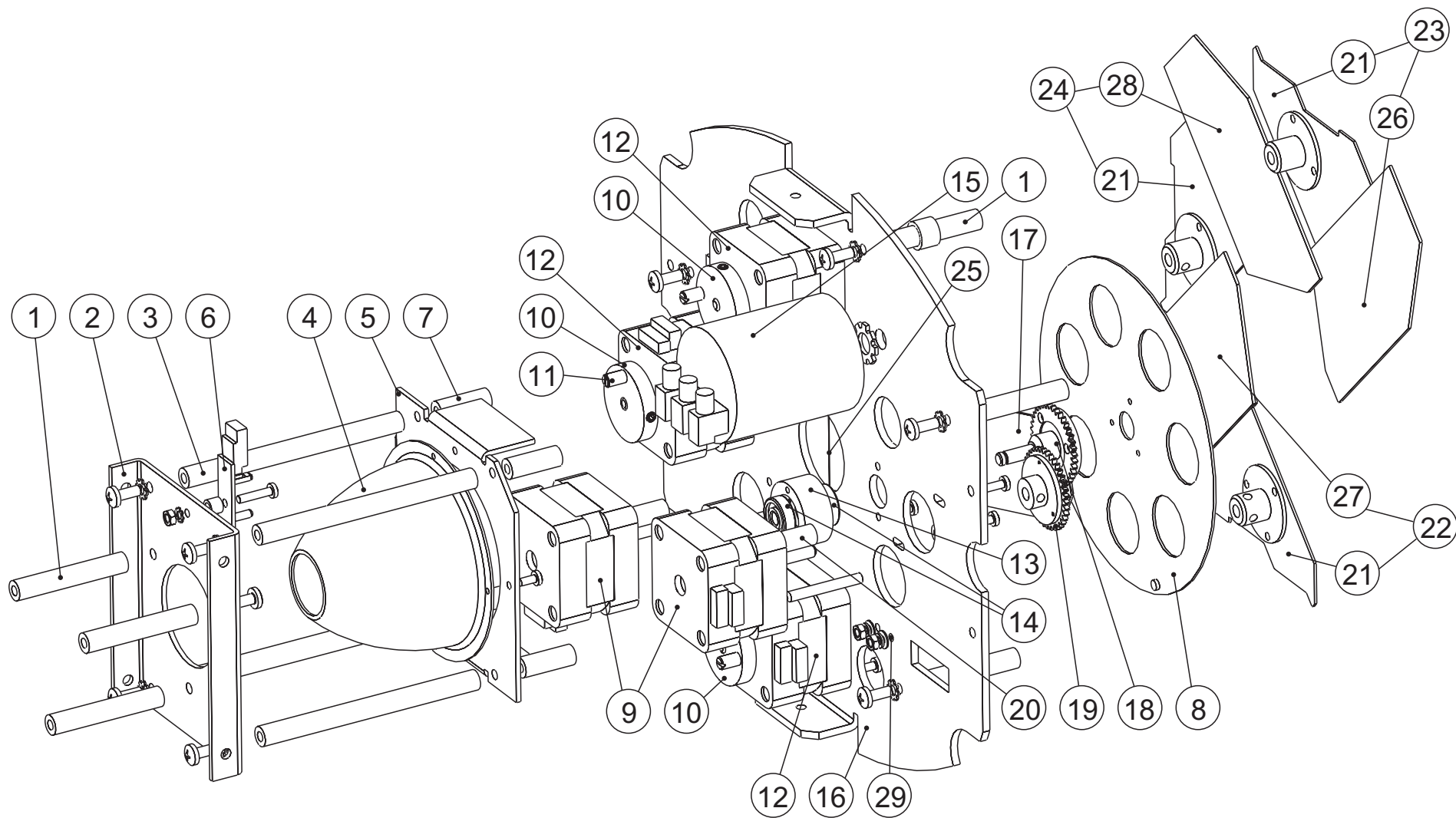
NAME:	MH-640			
TITLE:	AXE "X"			
DOCUMENT:	S03/00			
SIZE:	A4	DATE:	1.12.2000	SHEET: 3 OF 9



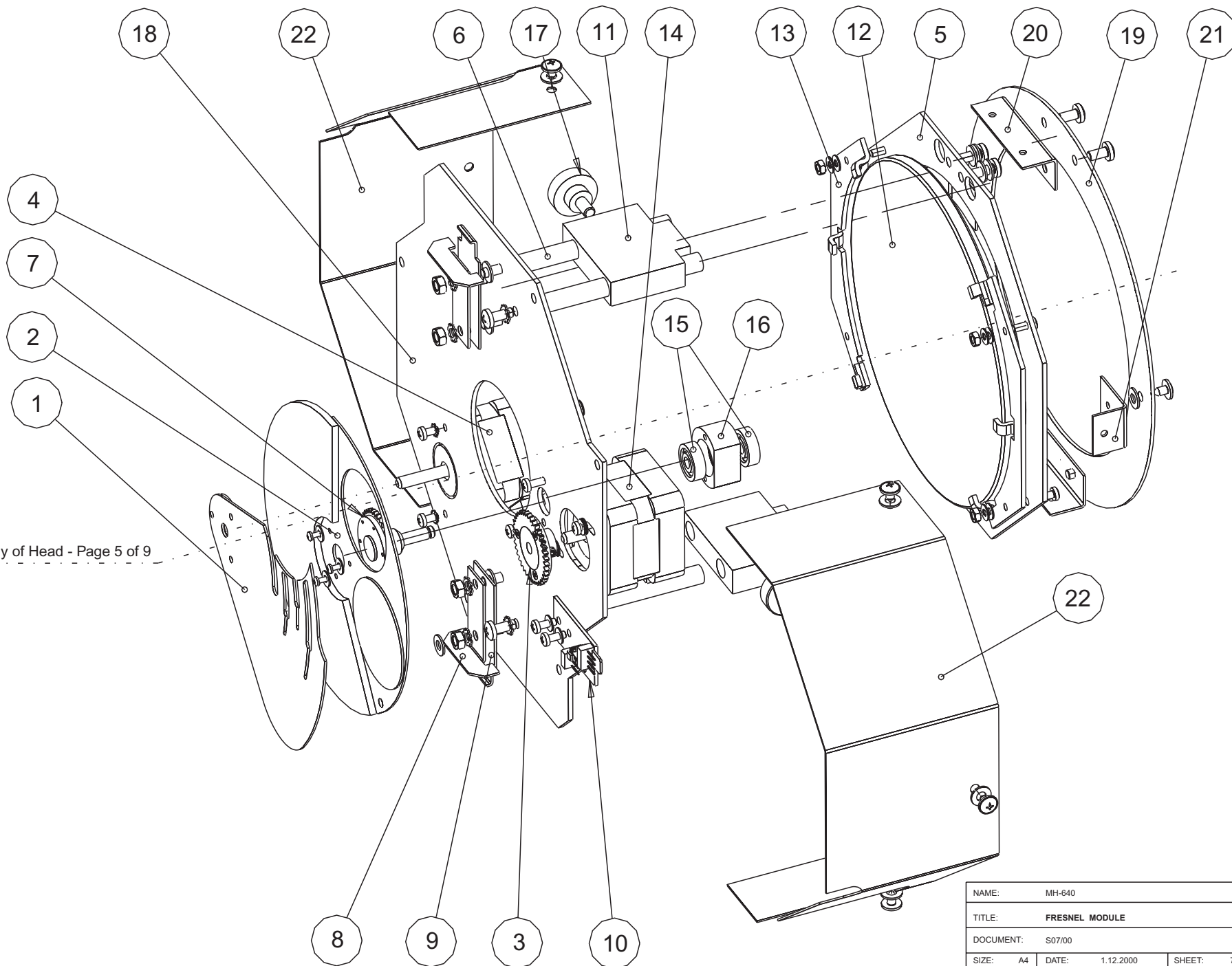
NAME:	MH-640			
TITLE:	ARM OF HEAD			
DOCUMENT:	S04/00			
SIZE:	A4	DATE:	1.12.2000	SHEET: 4 OF 9



NAME:	MH-640			
TITLE:	ASSEMBLY OF HEAD			
DOCUMENT:	S05/00			
SIZE:	A4	DATE:	1.12.2000	SHEET: 5 OF 9

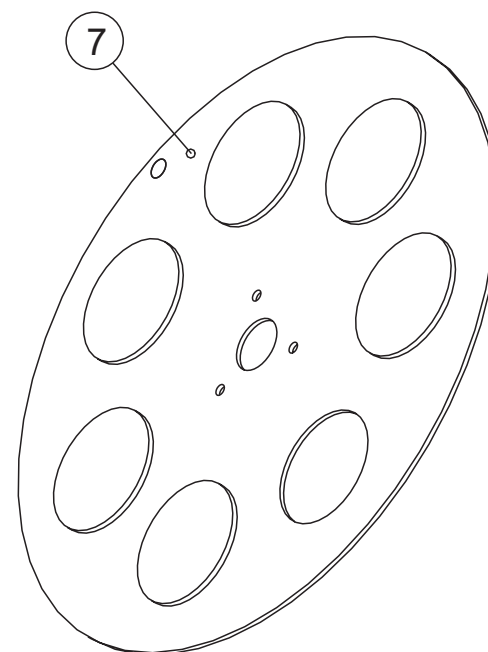
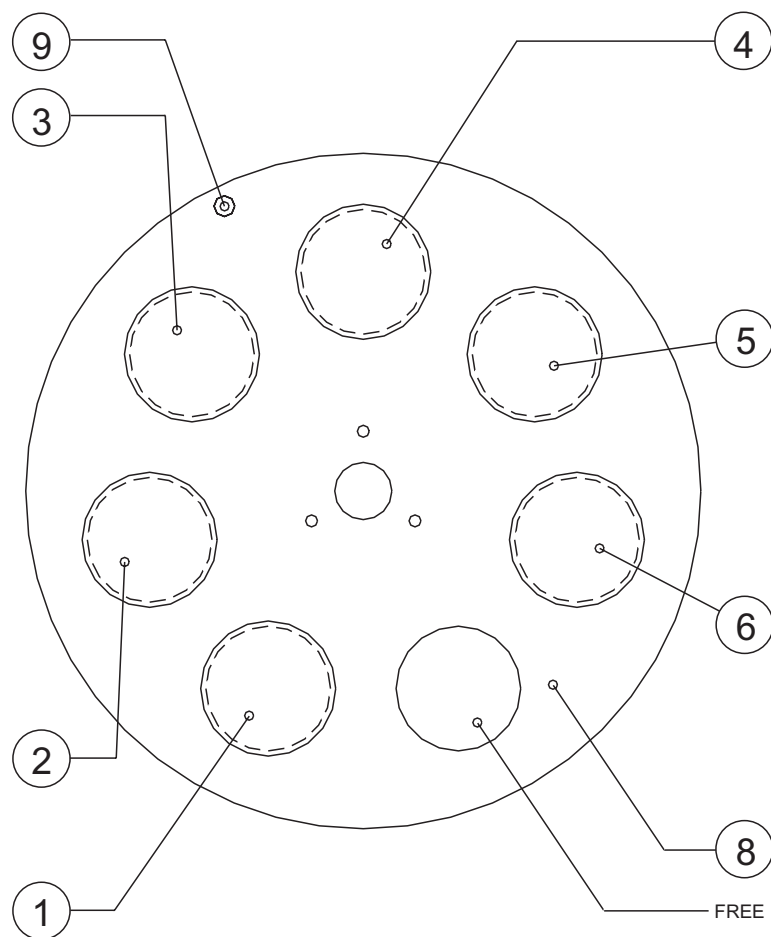
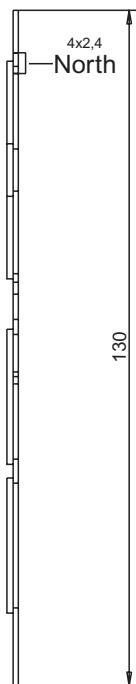


NAME:	MH-640			
TITLE:	CENTRAL MODULE			
DOCUMENT:	S06/00			
SIZE:	A4	DATE:	1.12.2000	SHEET: 6 OF 9

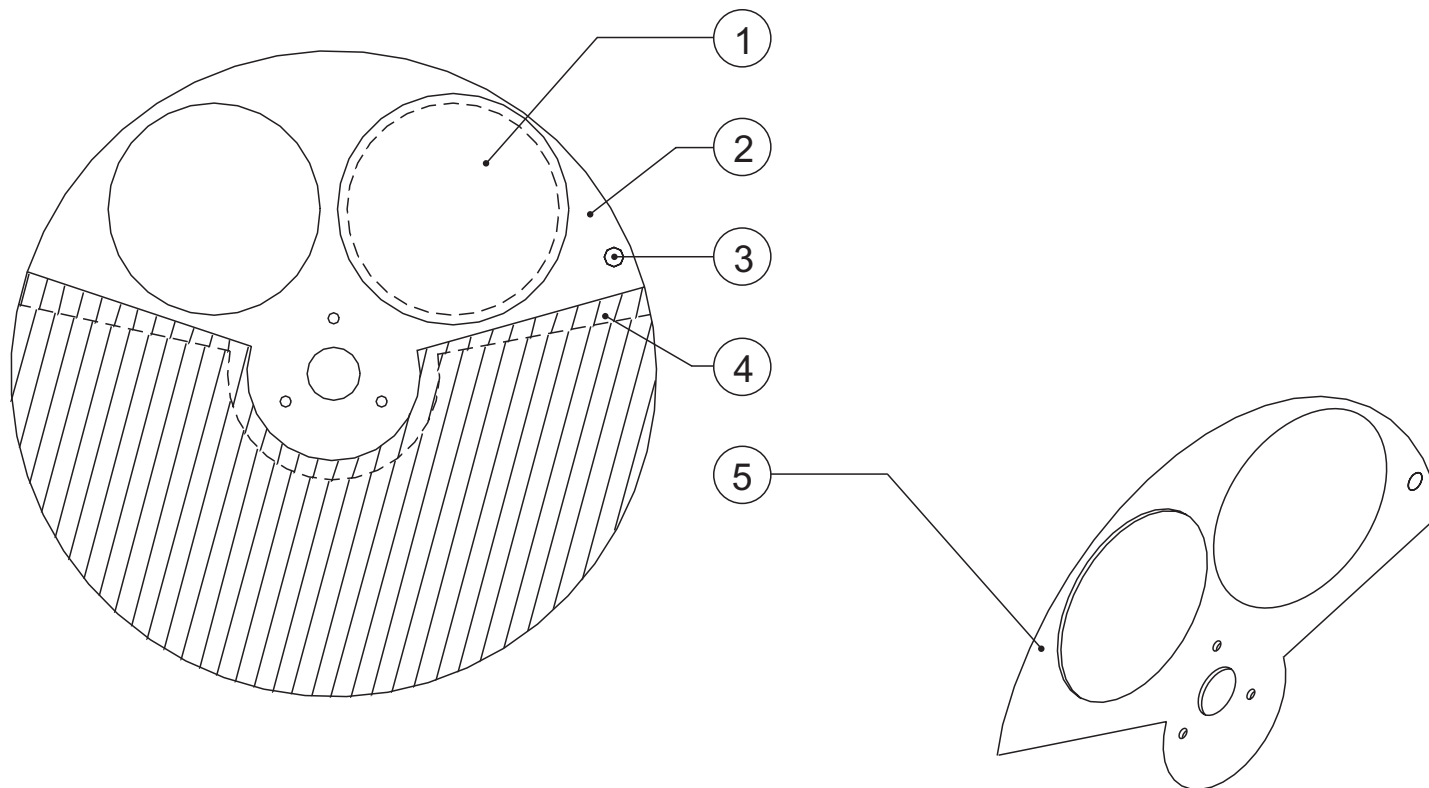
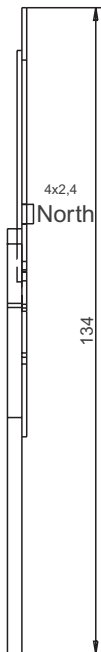


Assembly of Head - Page 5 of 9

NAME:	MH-640			
TITLE:	FRESNEL MODULE			
DOCUMENT:	S07/00			
SIZE:	A4	DATE:	1.12.2000	SHEET: 7 OF 9



NAME:		MH-640		
TITLE:		WHEEL OF COLORS		
DOCUMENT:		S08/00		
SIZE:	A4	DATE:	1.12.2000	SHEET: 8 OF 9



NAME:		MH-640		
TITLE:		WHEEL OF EFFECTS		
DOCUMENT:		S09/00		
SIZE:	A4	DATE:	1.12.2000	SHEET: 9 OF 9

No.	Designation - German	Designation - English	Designation - French	Designation - Spanish	Sheet/Pos.
		Cover base with logo "MH-660"/D			1/1
		Cover front "3"			1/2
E3123482	Armabdeckung für MH-640	Cover of arm for MH-640	Couvercle de bras pour MH-640	Cubierta de brazo para MH-640	1/3
E3123480	Gehäusedeckel für MH-640 (Projektorkopf)	Housing-lid for MH-640 (head)	Couvercle de boîtier p.MH-640 (tête)	Tapa de caja p. MH-640 (cabeza)	1/4
		Cover rear "3"			1/5
E3123481	Gehäusefront für MH-640 (Projektorkopf)	Housing-front for MH-640 (head)	Panneau avant p.MH-640 (tête)	Panel frontal p.MH-640 (cabeza)	1/6
		Grip-black			1/7, 2/3
		Cover base with logo "MH-660"			1/8
		Rubber H-profile set 2			1/9
		Clip "1"			1/10
E3123411	IC PIC 17C43-16/P DS (IC1) für MH-640	IC PIC 17C43-16/P DS (IC1) for MH-640	IC PIC 17C43-16/P DS (IC1) pour MH-640	IC PIC 17C43-16/P DS (IC1) para MH-640	1/11
		Display 7-segment DA56-11EWA			1/12
		PCB Display EZND2 (without PIC,EEPROM)			1/13
E3123416	Taster für Display MH-640	Contact switch for display MH-640	Bouton poussoir pour display MH-640	Pulsador para display MH-640	1/14
		Plexiglass for display			1/15
		IC EEPROM 24C08 MH-640/E V 1.0/IC2			1/16
E3123435	Drossel für MH-640	Ballast for MH-640	Ballast pour MH-640	Reactor para MH-640	2/1
E3123432	Kondensator für MH-640	Capacitor for MH-640	Condensateur pour MH-640	Condensador para MH-640	2/2
		Grill of fan 80 x 80 mm black			2/4, 5/4
E3123434	Lüfter für MH-640	Cooling fan for MH-640	Ventilateur pour MH-640	Ventilator para MH-640	2/5
		Fuse socket SILO 12			2/6
		Fuse socket PCB			2/7
E3123410	IC PIC 17C43-16/P (IC1) für MH-640	IC PIC 17C43-16/P (IC1) for MH-640	IC PIC 17C43-16/P (IC1) pour MH-640	IC PIC 17C43-16/P (IC1) para MH-640	2/8
		Relay Type 40.61 16A/250V			2/9
E3123417	IC PBL 3772 für MH-640	IC PBL 3772 for MH-640	IC PBL 3772 pour MH-640	IC PBL 3772 para MH-640	2/10
		PCB MHO version "A"			2/11
E3123420	Platine für MH-640	PCB for MH-640	Platine pour MH-640	Platina para MH-640	2/12
		XLR male 3-pin, PCB, angle, X906-02			2/13
		Transistor IRFZ 44N			2/14
		Plug male PCB PAW-2,54-04			2/15
		Photo-gate H22A1			2/16, 3/11
		Rubber base GF2			2/17
E3123429	Netzschalter für MH-640	Powerswitch for MH-640	Interrupteur ON/OFF pour MH-640	Interruptor de alimentación para MH-640	2/18
		XLR female 3-pin, PCB, angle, X907-02			2/19
		Terminal 2 pole CZN 5/2, PCB			2/20
		Terminal 3 pole CZN 5/3, PCB			2/21
		Toothwheel D115,6			2/22, 3/6, 4/8
E3123436	Trafo für MH-640	Transformer for MH-640	Transformateur pour MH-640	Transformador para MH-640	2/23
		Plug male PCB PAWR-2,54-03			2/24
E3123418	Magnetsensor für MH-640	Hall sensor magnet for MH-640	Senseur magnetique pour MH-640	Sensor magnético para MH-640	3/1
		Holder ball-bearing			3/2
		PCB MAG-6 version "A"			3/3
		PCB MHO			3/4
		Pivot "Y"			3/5
		Toothwheel D83			3/7, 4/10
		Toothwheel D25			3/8, 4/9
E3123460	Zahnriemen für Kopfbewegung MH-640 (PAN)	Toothed-belt f.head-movement MH-640 (PAN)	Courroie dentée p.movement de tête(PAN)	Correa dentada p.movimien. de cabeza(PAN)	3/9
E3123450	Steppermotor für Kopfbewegung MH-640	Steppingmotor for head-movement MH-640	Moteur pas à pas p.movement de tête MH640	Motor paso a paso p.movimiento de cabeza	3/10

No.	Designation - German	Designation - English	Designation - French	Designation - Spanish	Sheet/Pos.
		Nut axes "X"			3/12
		Lock ring axes "X"			3/13, 4/17
		Movement-stop "X"			3/14
		Holder axes "X"			3/15
		Stiffener of holder axes "X"			3/16
		Ring-plastic "X"			3/17
		Bearing 6004 2ZR			3/18, 4/15
		Fixation steppermotor "X" axe			3/19
		IC L239D with cooler			4/1
		IC PIC 16C57C MH-640 V 1./IC1/M			4/2
		PCB MAG-4 version "A"			4/3
		PCB MHO version "A"			4/4
		PCB EZ670 (without PIC)			4/5
		Pivot "X"			4/6
E3123450	Steppermotor für Kopfbewegung MH-640	Steppingmotor for head-movement MH-640	Moteur pas à pas p.movement de tête MH-640	Motor paso a paso p.movimiento de cabeza	4/7
E3123461	Zahnriemen für Kopfbewegung MH-640 (TILT)	Toothed-belt f.head-movement MH-640(TILT)	Courroie dentée p.movem. de tête (TILT)	Correa dentada p.movimien.de cabeza(TILT)	4/11
		Holder steppermotor "Y"			4/12
		Arm of head			4/13
		Stiffener arm of head			4/14
		IC PIC 16C57C MH-640 V 1./IC1/P			4/16
		Fixation steppermotor "Y" axe			4/18
		Lock ring No.: 40			4/19
		Bearing shell of pulley - 6004			4/20
		Bearing shell			4/21
		Cover of lamp exchanges			5/1
E3123430	Socket für MH-640	Lampsocket for MH-640	Douille pour MH-640	Casquillo para MH-640	5/2
		Fan KDE 1208 80 x 80 12V 2,6W			5/3
		Cover of rubber			5/5
E3123433	Thermosicherung für MH-640	Thermal fuse for MH-640	Fusible thermique pour MH-640	Termofusible para MH-640	5/6
		Supporting frame of head			5/7
		Stiffener right "1" (Thermostat)			5/8
		Shielding stopping of lamp			5/9
E3123491	Abstandshalter für Socket MH-640	Spacer for lamp-socket MH-640	Module de distance pour douille MH-640	Distanciador para casquillo MH-640	5/10
E3123490	Feder für Sockelarretierung MH-640	Spring for socket-adjustment MH-640	Ressort p.arrêtage de la douille MH-640	Resorte p.detención de casquillo MH-640	5/11
		Stopping of lamp			5/12
		Stiffener left "1"			5/13
		Clamping of head			5/14
		Spacer D8xL47xM4			6/1
		Clamping of lamp exchanges			6/2
		Spacer D8xL93xM4			6/3
E3123446	Reflektor für MH-640	Reflector for MH-640	Réflecteur pour MH-640	Reflector para MH-640	6/4
		Module of reflector "2"			6/5
		PCB CNG-4 version "A"			6/6
		Spacer D8xd4xL21.7			6/7
E3123441	Farbrad für MH-640	Colorwheel for MH-640	Roue des couleurs pour MH-640	Rueda de colores para MH-640	6/8
E3123452	Steppermotor für MH-640 (universal)	Steppingmotor for MH-640 (universal)	Moteur pas à pas p.MH-640 (universal)	Motor paso a paso p.MH-640 (universal)	6/9
		Holder damper device D30/1			6/10
		Damper device			6/11

No.	Designation - German	Designation - English	Designation - French	Designation - Spanish	Sheet/Pos.
E3123451	Steppermotor für Farbmischung MH-640	Steppingmotor for color-mix MH-640	Moteur pas à pas p.mix de couleur MH-640	Motor paso a paso p.mix de color MH-640	6/12
		Holder ball-bearing 625/C			6/13
		Bearing 625 2ZR			6/14, 7/15
E3123431	Starter für MH-640	Ignitor for MH-640	Starter pour MH-640	Encendedor para MH-640	6/15
		Central modul - RT (Central??)			6/16
E3123440	Shutter für MH-640	Shutter for MH-640	Shutter pour MH-640	Shutter para MH-640	6/17
		Pivot "E/C"			6/18
		Toothwheel D32 z=38 m0,8			6/19
		Spacer D8xd4xL14			6/20
E3123445	Dichro-Filter (gelb) für MH-640	Dichroitic filter (yellow) for MH-640	Filtre dichroïque (jaune) pour MH-640	Filtro dicroico (amarillo) para MH-640	6/21
E3123444	Dichro-Filter (magenta) für MH-640	Dichroitic filter (magenta) for MH-640	Filtre dichroïque (magenta) pour MH-640	Filtro dicroico (magenta) para MH-640	6/22
E3123443	Dichro-Filter (cyan) für MH-640	Dichroitic filter (cyan) for MH-640	Filtre dichroïque (cyan) pour MH-640	Filtro dicroico (cyan) para MH-640	6/23
		Dimmer 600			7/1
E3123442	Effektrad für MH-640	Effectwheel for MH-640	Roue d'effets pour MH-640	Rueda de efectos para MH-640	7/2
		Toothwheel D32 z=38 m0,8			7/3
E3123452	Steppermotor für MH-640 (universal)	Steppingmotor for MH-640 (universal)	Moteur pas à pas p.MH-640 (universal)	Motor paso a paso p.MH-640 (universal)	7/4
		Holder of Fresnel			7/5
		Spacer D8xL82xM4			7/6
		Toothwheel-ring D31 z=38 m0,8			7/7
		Shielding clips of cover			7/8
		Counterpart clips of cover			7/9
		PCB MAG-5 version "B"			7/10
		Plastic block "1"			7/11
E3123447	Linse für MH-640 (fresnel)	Lens for MH-640 (fresnel)	Lentille pour MH-640 (fresnel)	Lente para MH-640 (fresnel)	7/12
		Clamping Fresnel lens			7/13
E3123452	Steppermotor für MH-640 (universal)	Steppingmotor for MH-640 (universal)	Moteur pas à pas p.MH-640 (universal)	Motor paso a paso p.MH-640 (universal)	7/14
		Holder ball-bearing 625/E			7/16
		Screw M4x6 knurled metall			7/17
		Modul Fresnel			7/18
		Front overlay - Fresnel			7/19
		Dichro 26 UV 420			8/1
		Dichro 26 converts DL 542			8/2
		Dichro 26 converts TC 3256			8/3
		Dichro 26 green WB 5055			8/4
		Dichro 26 blue SW 510			8/5
		Dichro 26 red LW 610			8/6
		Wheel Color "4" without Dichro-filters			8/7
E3123441	Farbrad für MH-640	Colorwheel for MH-640	Roue des couleurs pour MH-640	Rueda de colores para MH-640	8/8
		Magnet D4/2, 4mm			8/9, 9/3
		Frost-glass 48 mm			9/1
		Wheel Effect "4" without Effects			9/2
E3123449	Beam-Shape-Glas für MH-640	Beam-shape-glass for MH-640	Beam-shape-glass pour MH-640	Beam-shape-glass para MH-640	9/4
E3123442	Effektrad für MH-640	Effectwheel for MH-640	Roue d'effets pour MH-640	Rueda de efectos para MH-640	9/5
51836234	Linse 12° für SC-Serie 3-5-7	Lens 12° for SC-series 3-5-7	Lentille 12° pour série SC 3-5-7	Lente 12° para serie SC 3-5-7	
51836236	Linse 18° für MH-660	Lens 18° for MH-660	Lentille 18° pour MH-660	Lente 18° para MH-660	
E3123419	Photodiode für MH-640	Photodiode for MH-640	Photodiode pour MH-640	Fotodiode para MH-640	
E3123448	Hitzeschutzglas für MH-640	Heat-protection filter for MH-640	Filtre thermique pour MH-640	Filtro térmico para MH-640	
E6502056	Schaltplan für MH-640	Circuit diagram for MH-640	Schema de connexions pour MH-640	Esquema cableado para MH-640	