SMPC300006199

Shop Manual

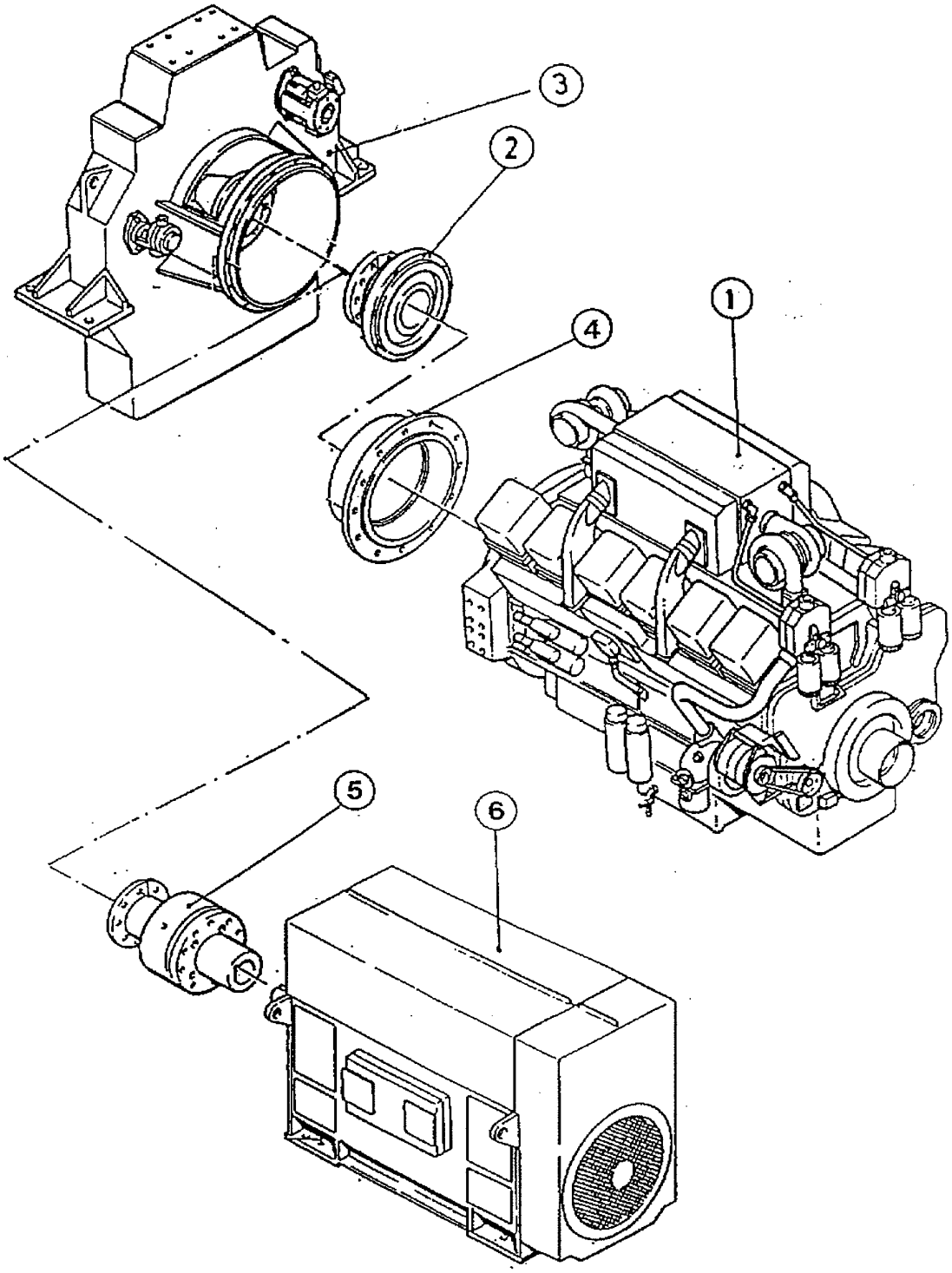
PC3000-1

HYDRAULIC MINING SHOVEL

SERIAL NUMBERS PC3000-1 6199

July 2006

Z 22176		KOMATSU MINING GERMANY



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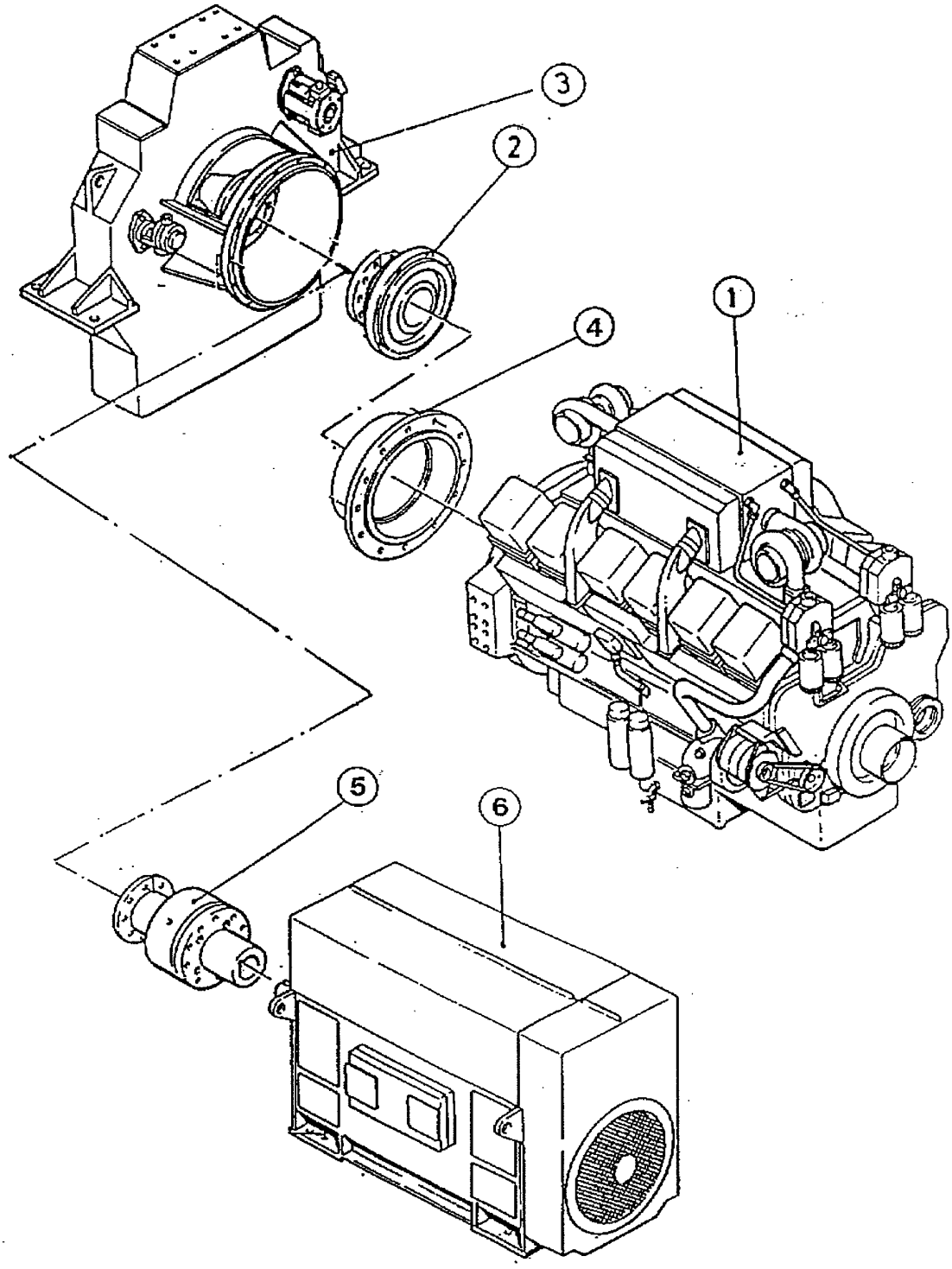

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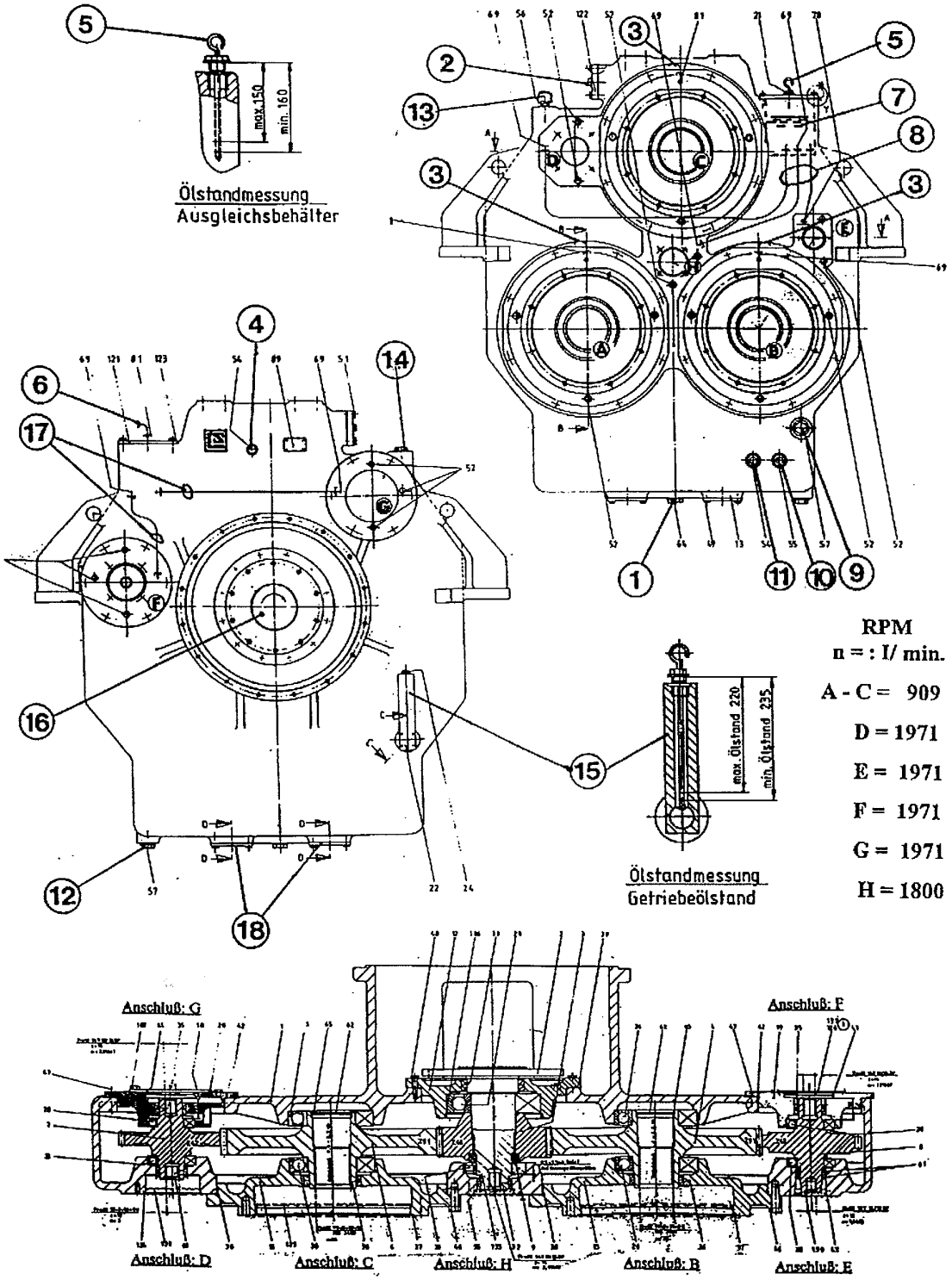

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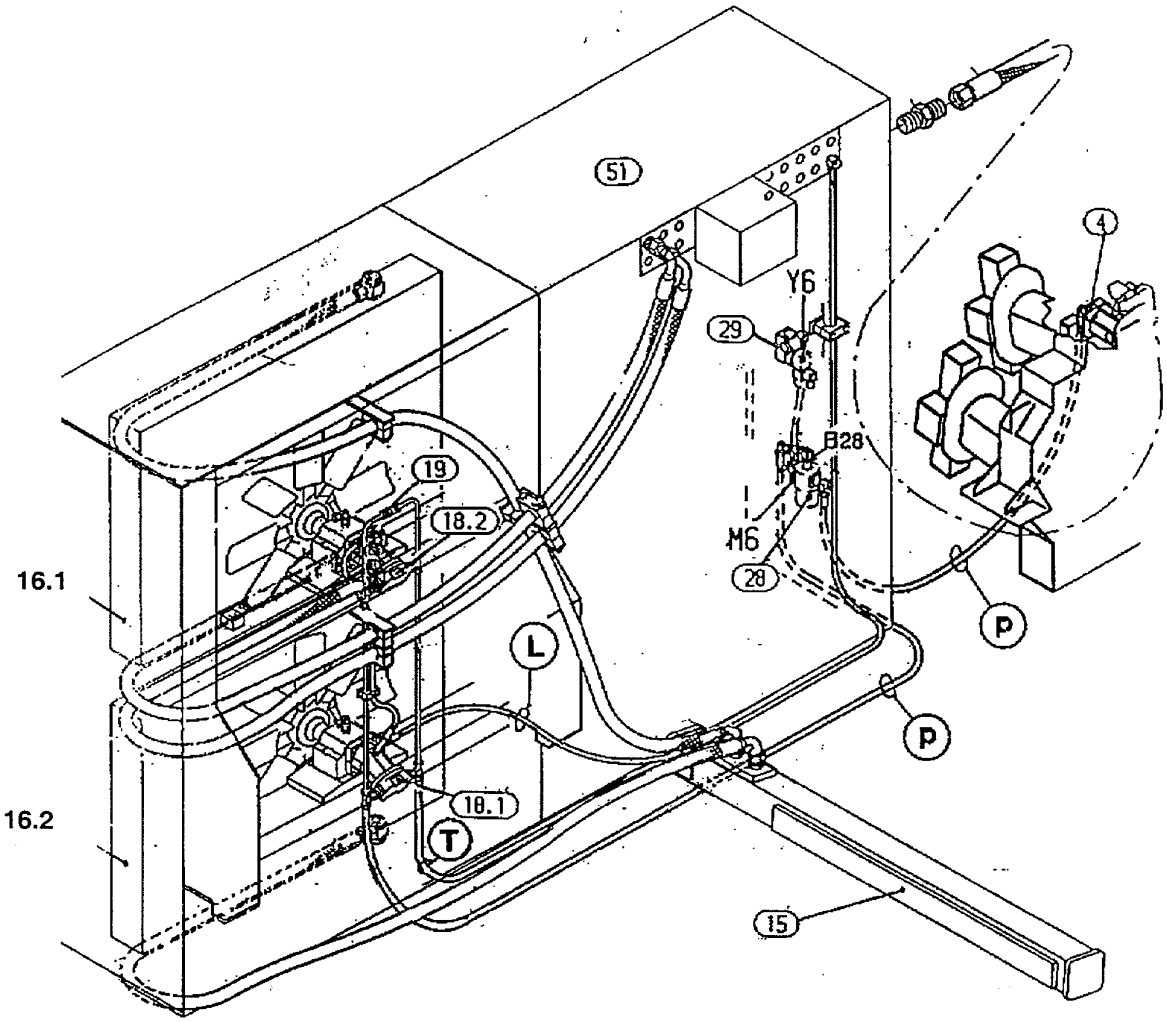

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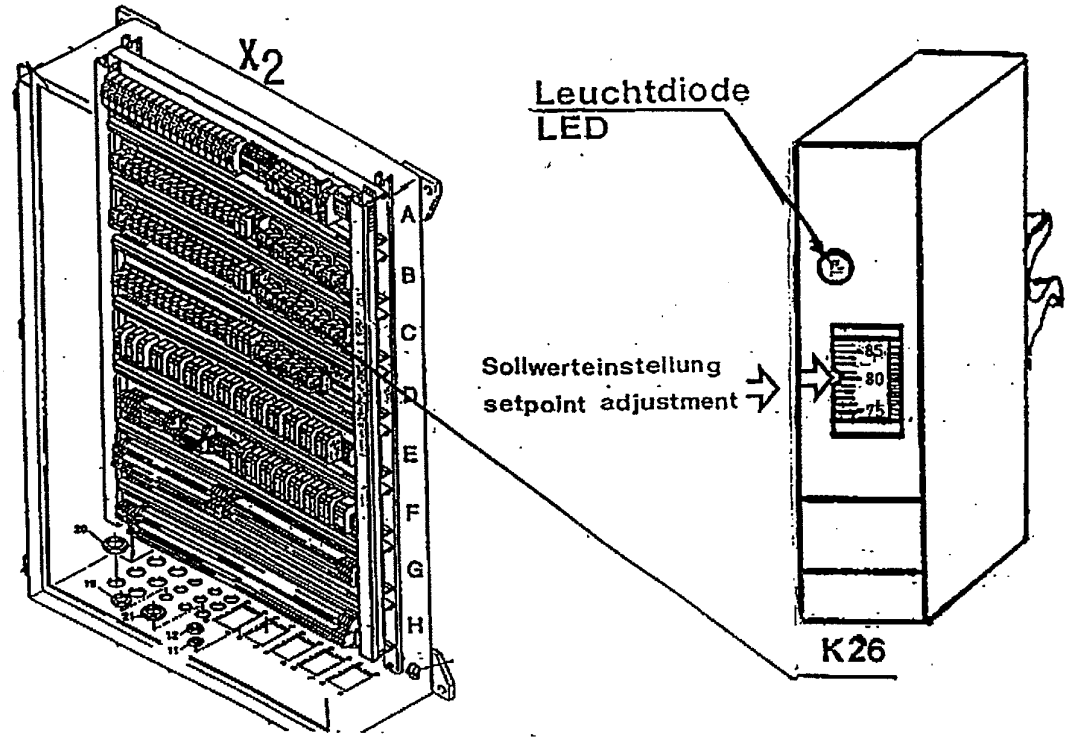
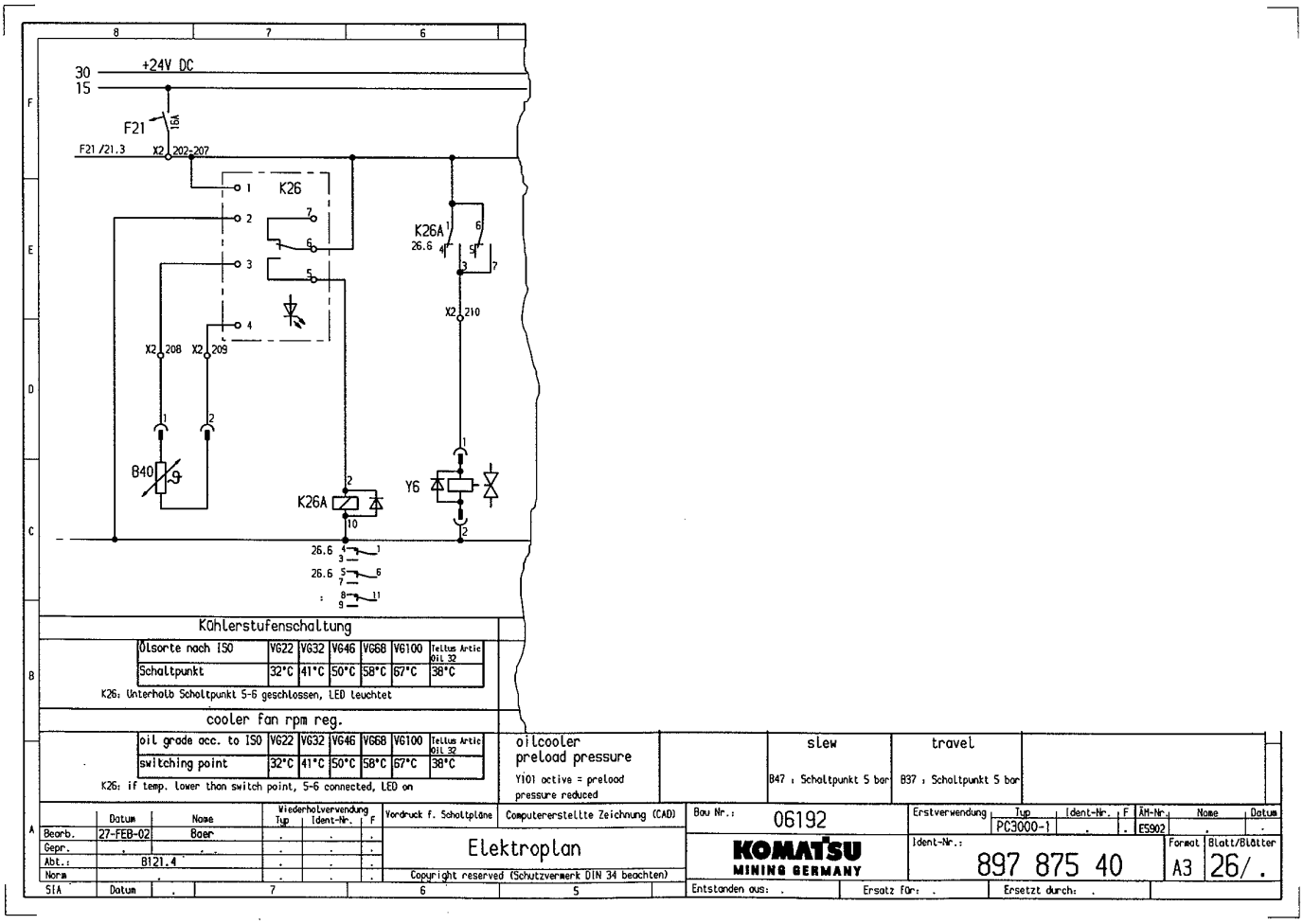




Kühlerstufenschaltung

Ölsorte nach ISO	VG22	VG32	VG46	VG68	VG100	Tellus Artic Oil 32
Schaltpunkt	32°C	41°C	50°C	58°C	67°C	38°C

K26: Unterhalb Schaltpunkt 5-6 geschlossen, LED leuchtet

cooler fan rpm reg.

oil grade acc. to ISO	VG22	VG32	VG46	VG68	VG100	Tellus Artic Oil 32
switching point	32°C	41°C	50°C	58°C	67°C	38°C

K26: if temp. lower than switch point, 5-6 connected, LED on

oilcooler preload pressure

Y101 active = preload pressure reduced

slew: B47 ; Schaltpunkt 5 bar

travel: B37 ; Schaltpunkt 5 bar

	Datum	Name	Wiederholverwendung Typ	Ident-Nr.	F
Bearb.	27-FEB-02	Baer			
Gepr.					
Abt.:	B121.4				
Norm					

Vordruck f. Schaltpläne | Computererstellte Zeichnung (CAD)

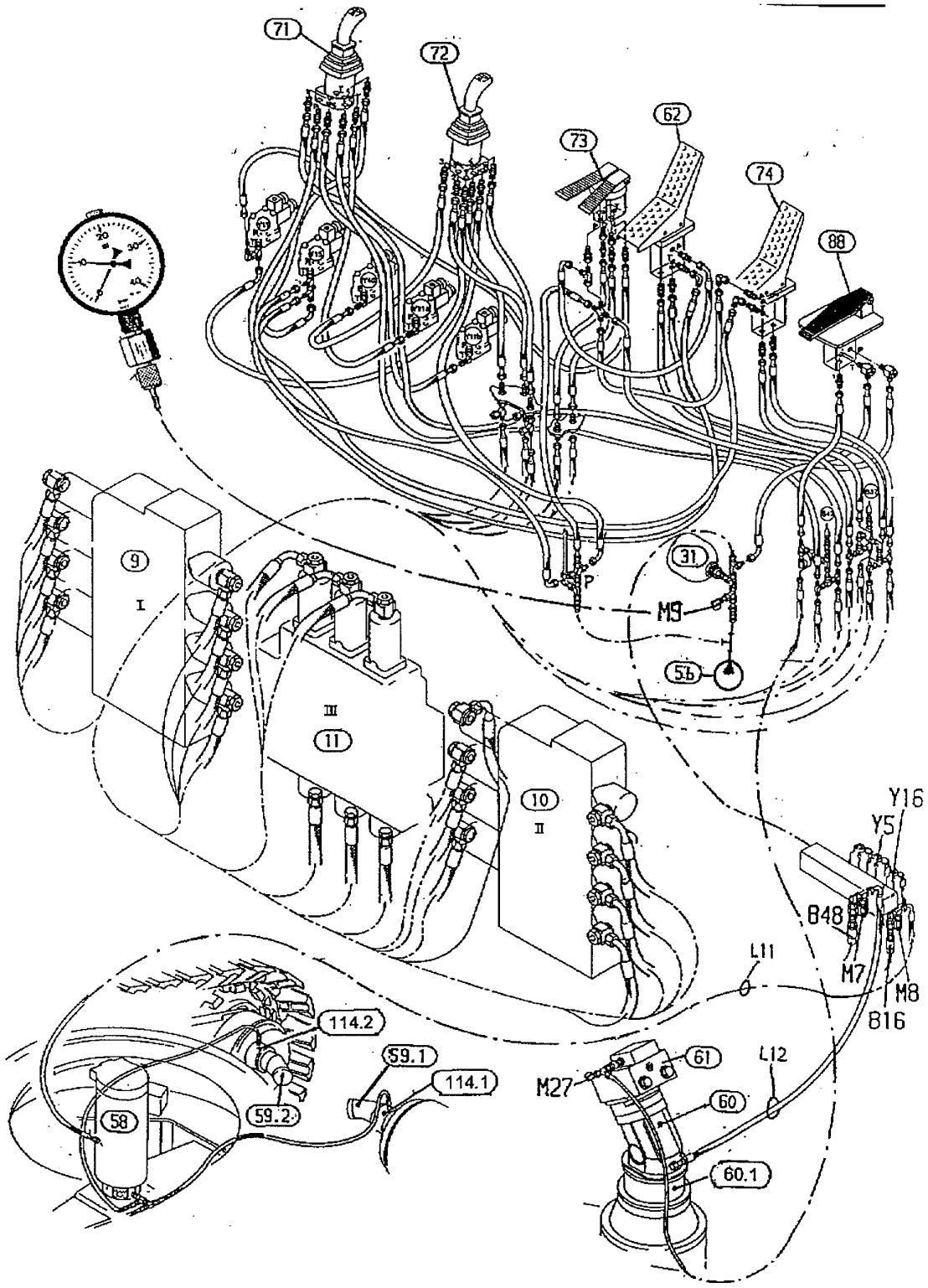
Elektroplan

Bau Nr.:	06192
Erstverwendung	Typ: PC3000-1
Ident-Nr.:	897 875 40
Format	A3
Blatt/Blätter	26/.

KOMATSU MINING GERMANY

Entstanden aus: . | Ersatz für: . | Ersetzt durch: .

Z 22202		KOMATSU MINING GERMANY



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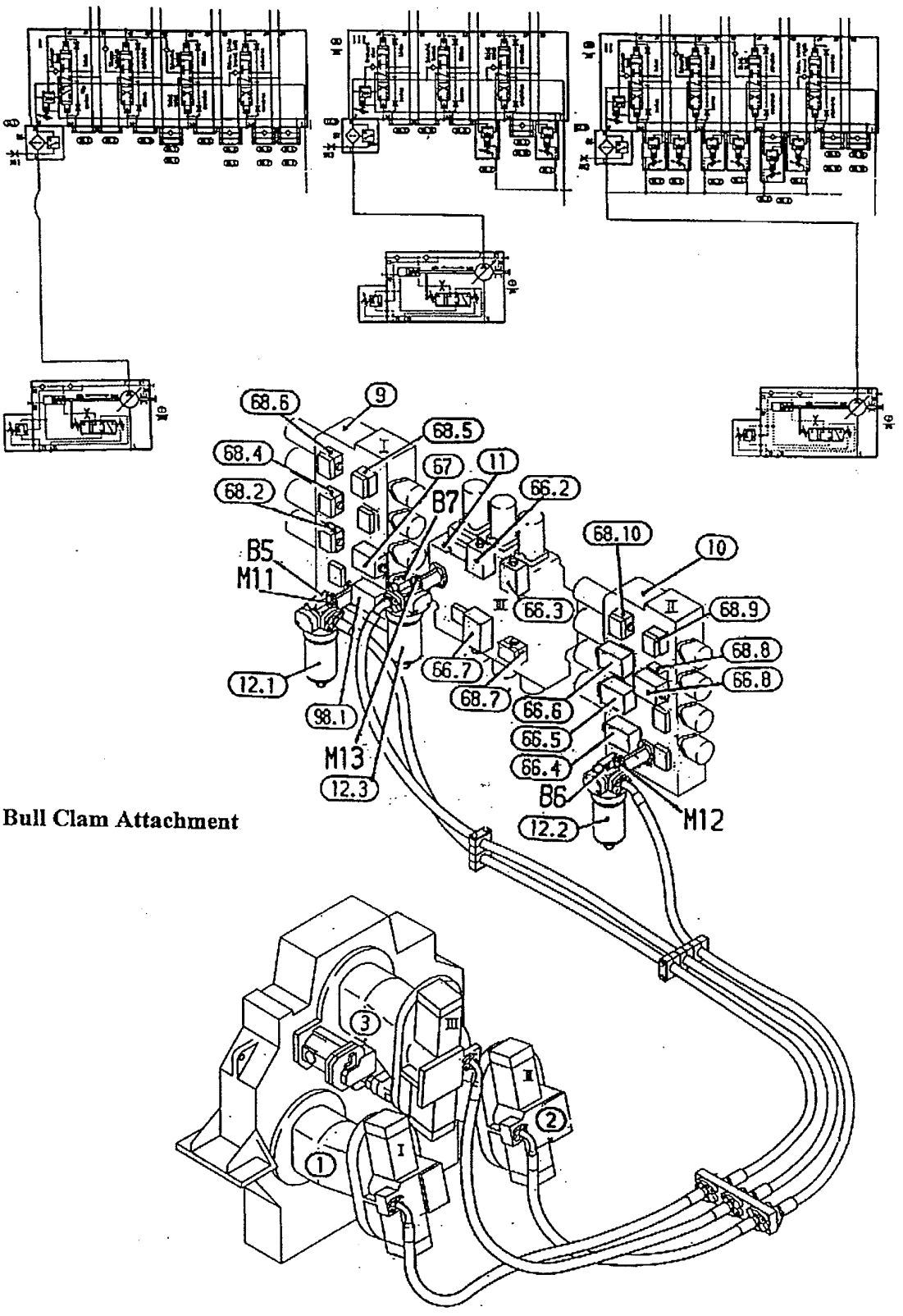

Bull Clam Attachment

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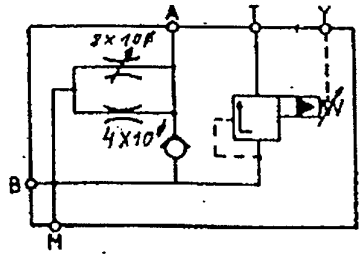
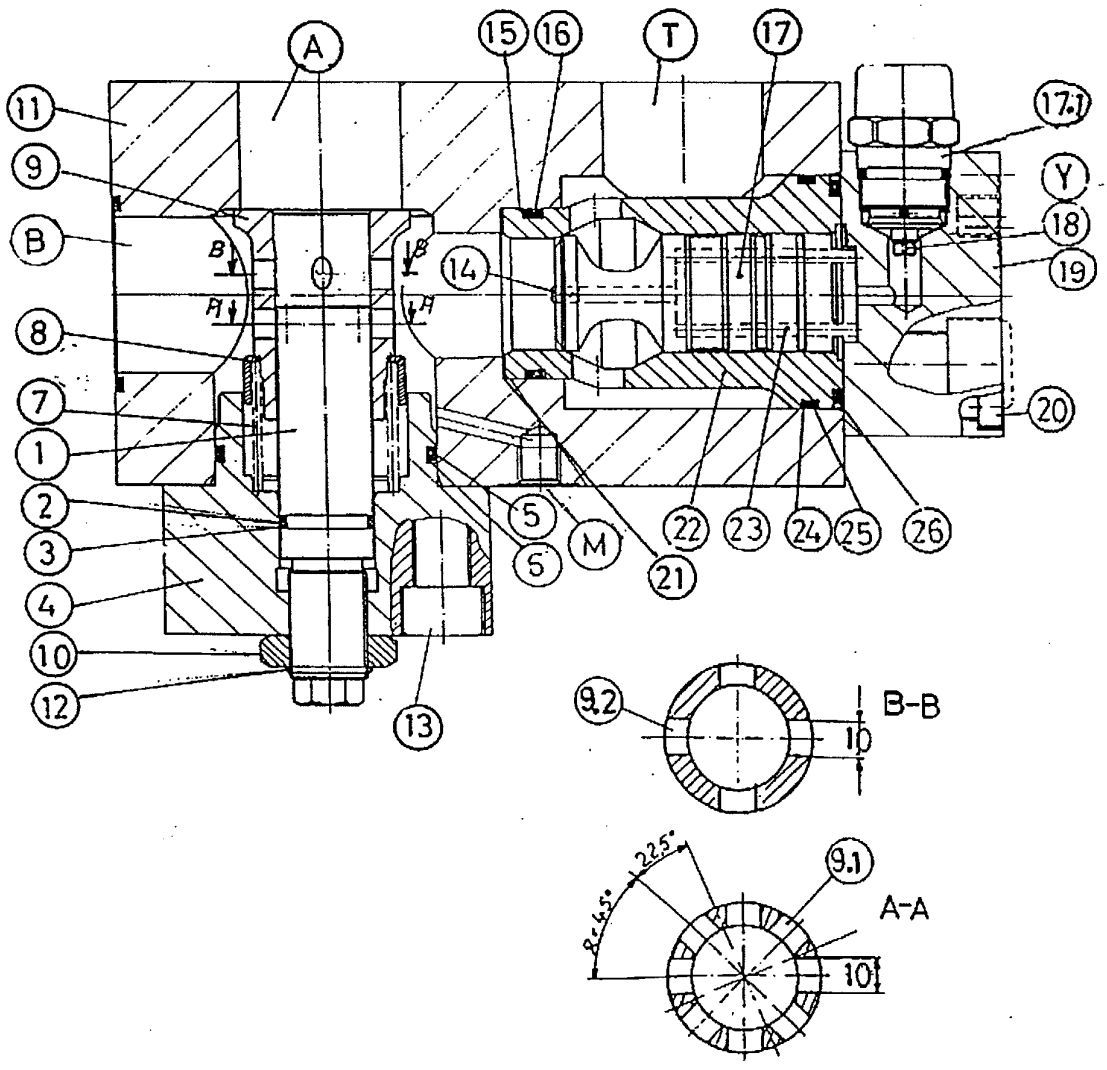
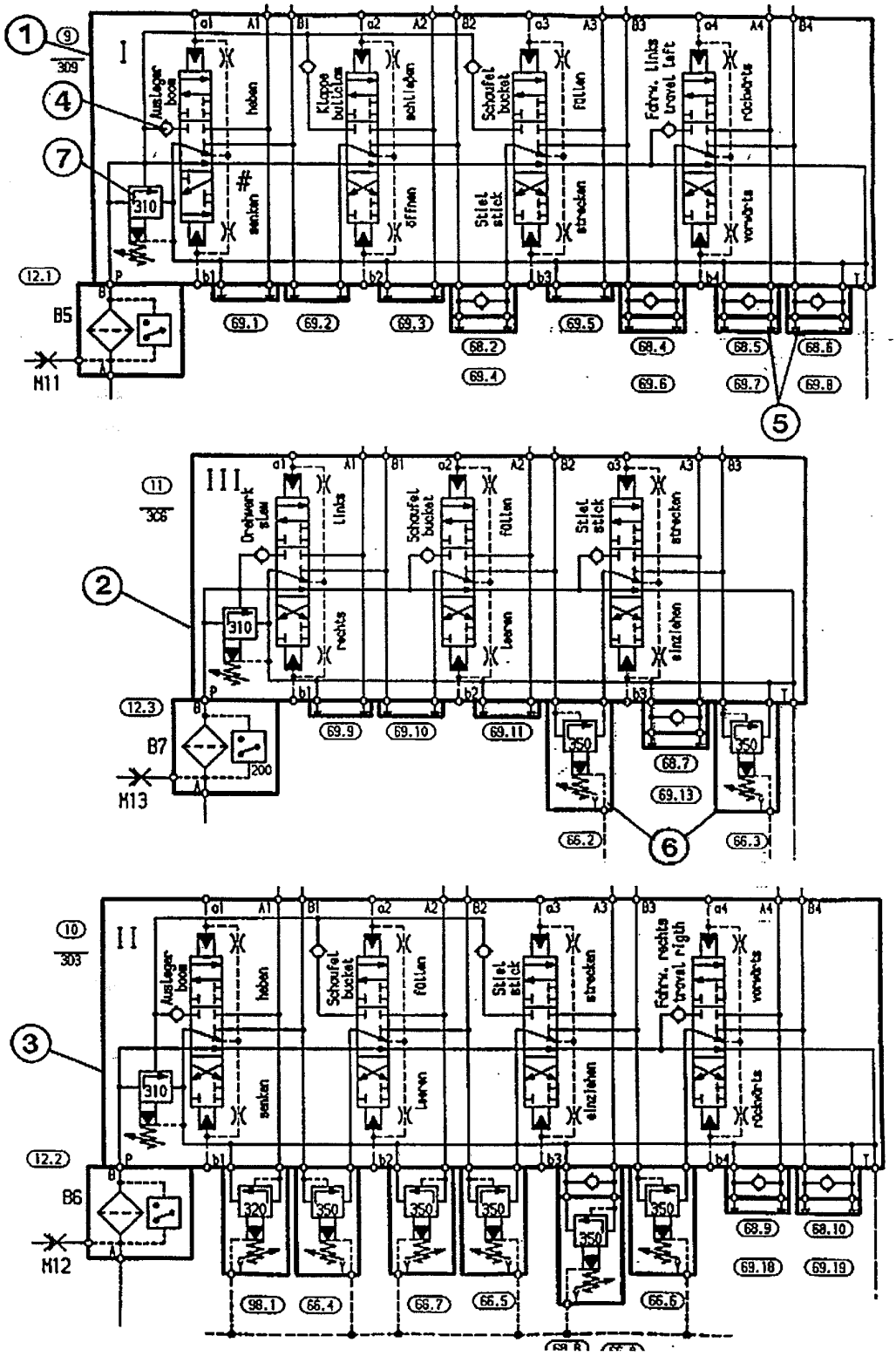
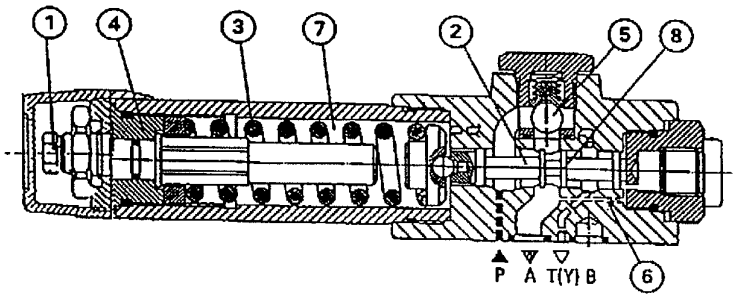
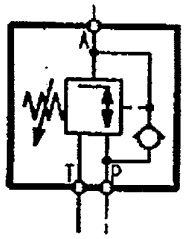





I
II
III
Auslegerboom
heben
senken
Klappe/Löffel
schließen
öffnen
Schaufel/bucket
füllen
Leeren
Stiel/stick
strecken
einziehen
Fahrw. links/travel left
Fahrw. rechts/travel right
vorwärts
rückwärts
Drehwerk/slew
links
rechts
B5
B6
B7
M11
M12
M13
310
320
350
200
12.1
12.2
12.3
69.1
69.2
69.3
69.4
69.5
69.6
69.7
69.8
69.9
69.10
69.11
69.13
68.2
68.4
68.5
68.6
68.7
68.9
68.10
69.18
69.19
66.2
66.3
66.4
66.5
66.6
66.7
98.1
1
2
3
4
5
6
7

Z 22221		KOMATSU MINING GERMANY





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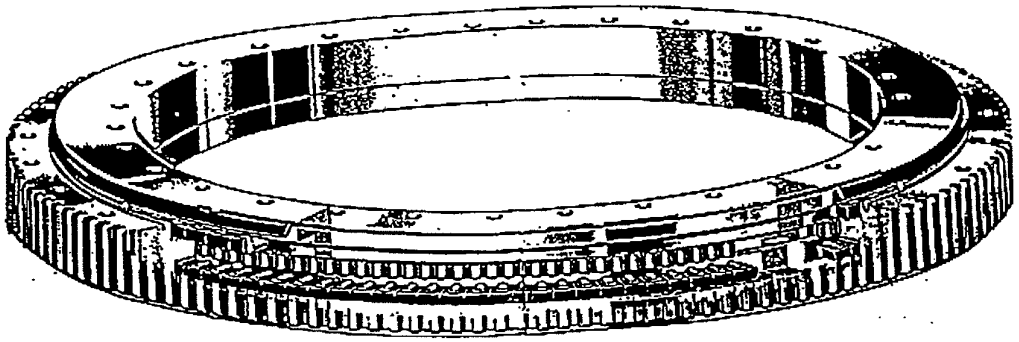
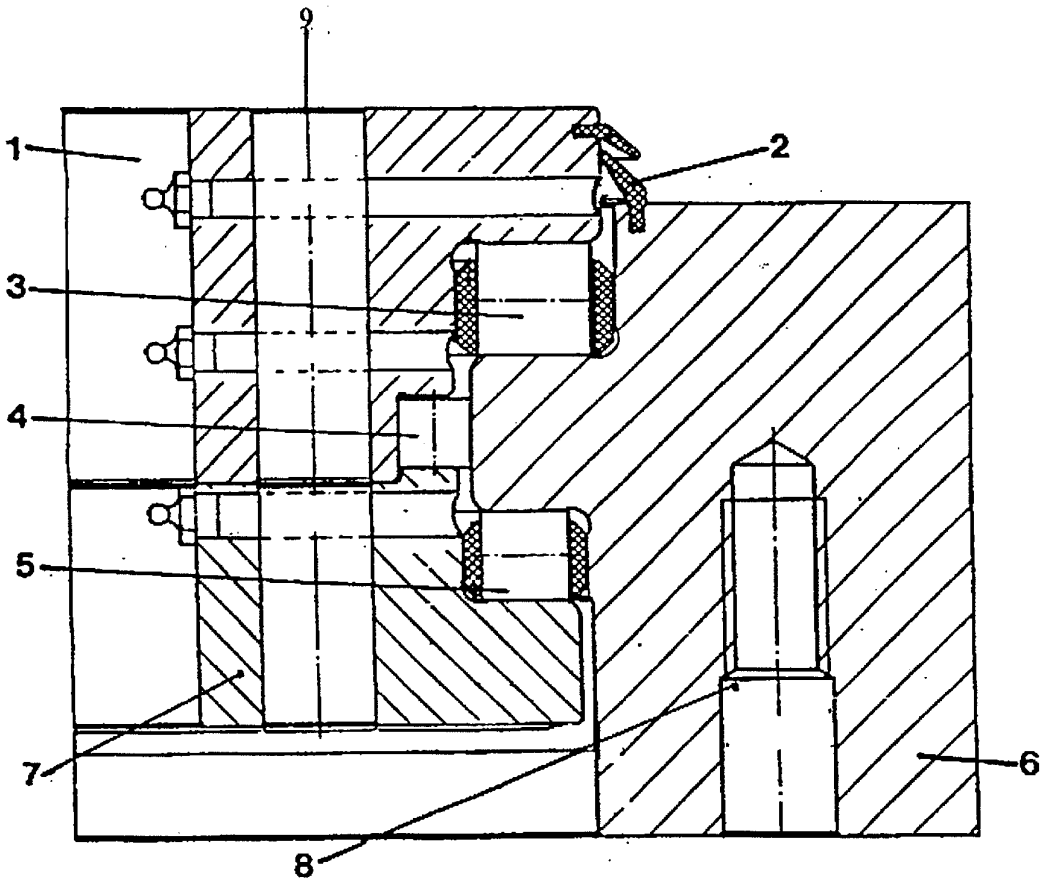




Z 22228		KOMATSU MINING GERMANY

Fig.1

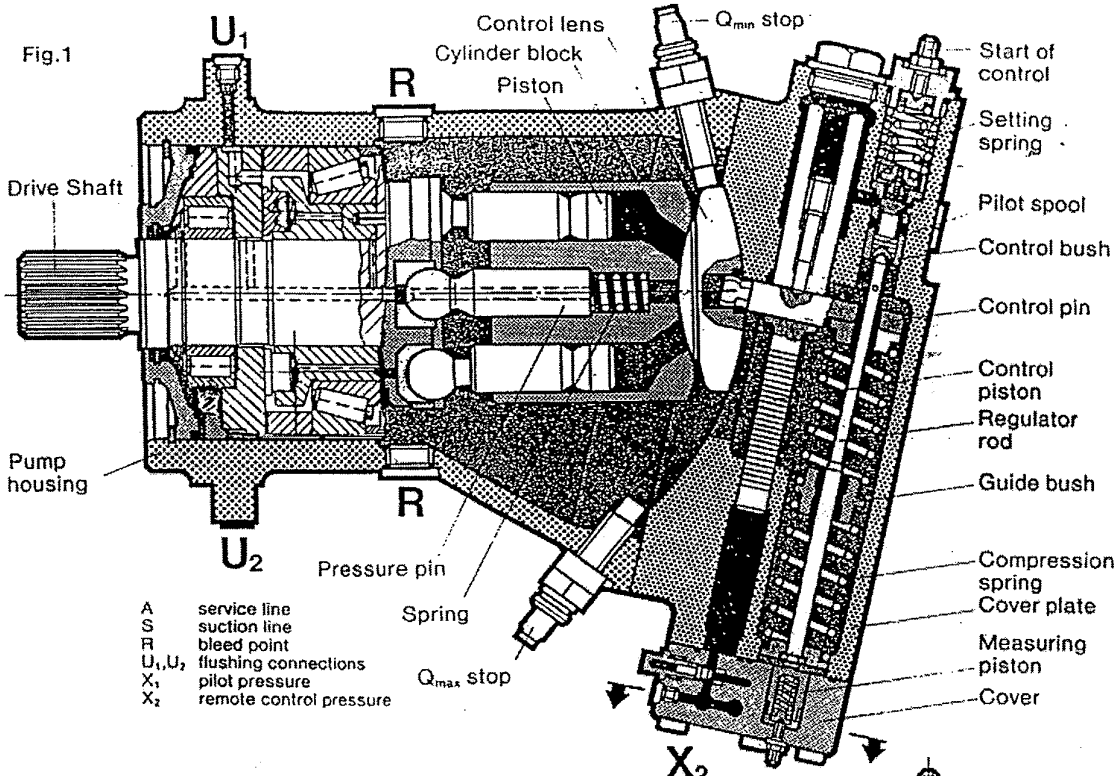


Fig. 2*

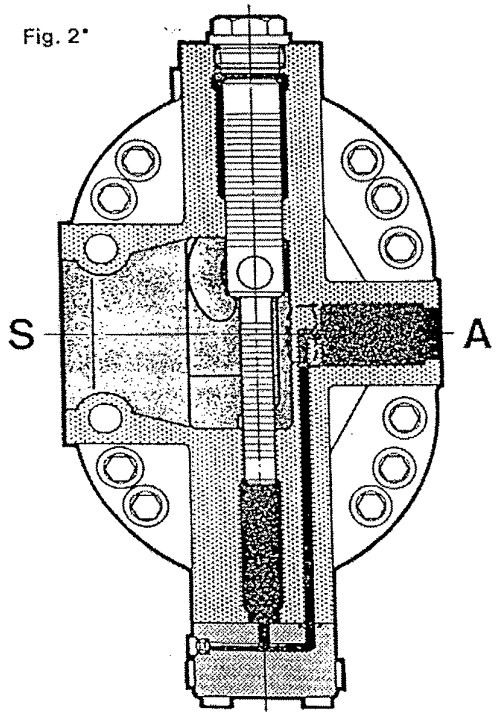
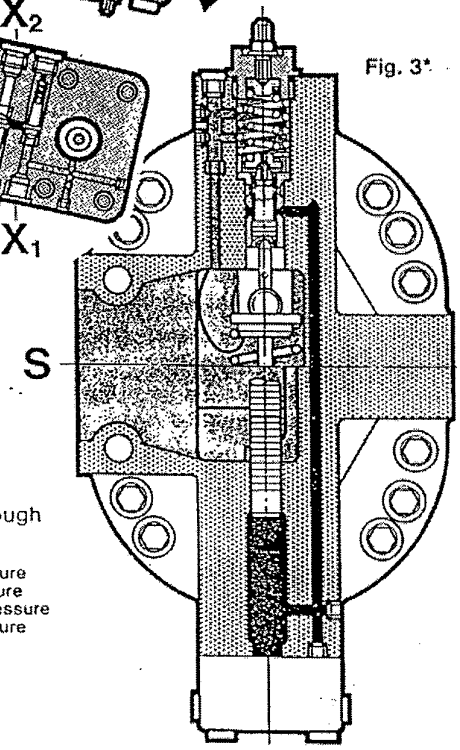


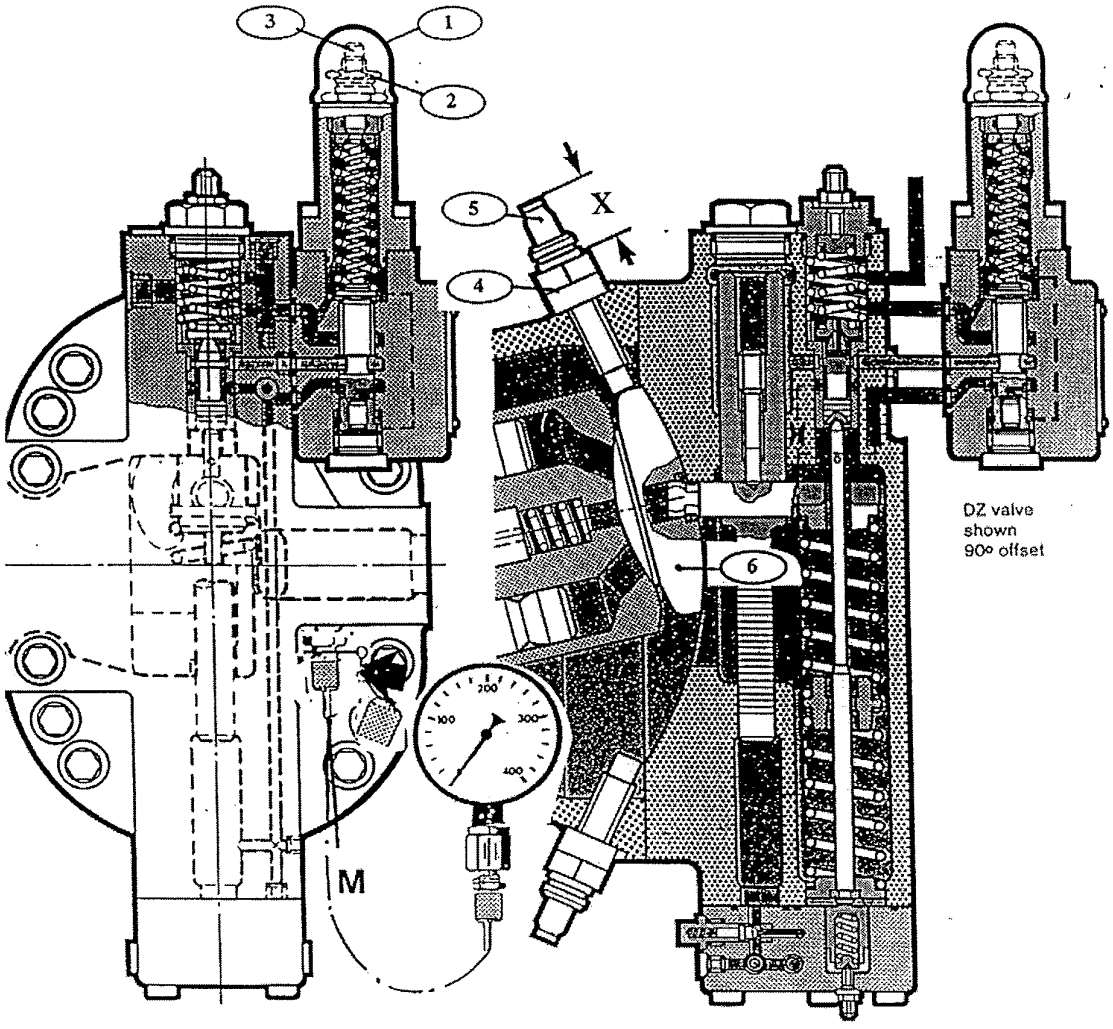
Fig. 3*

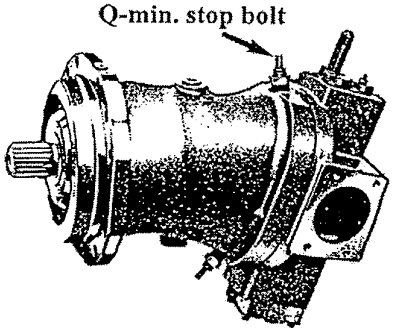


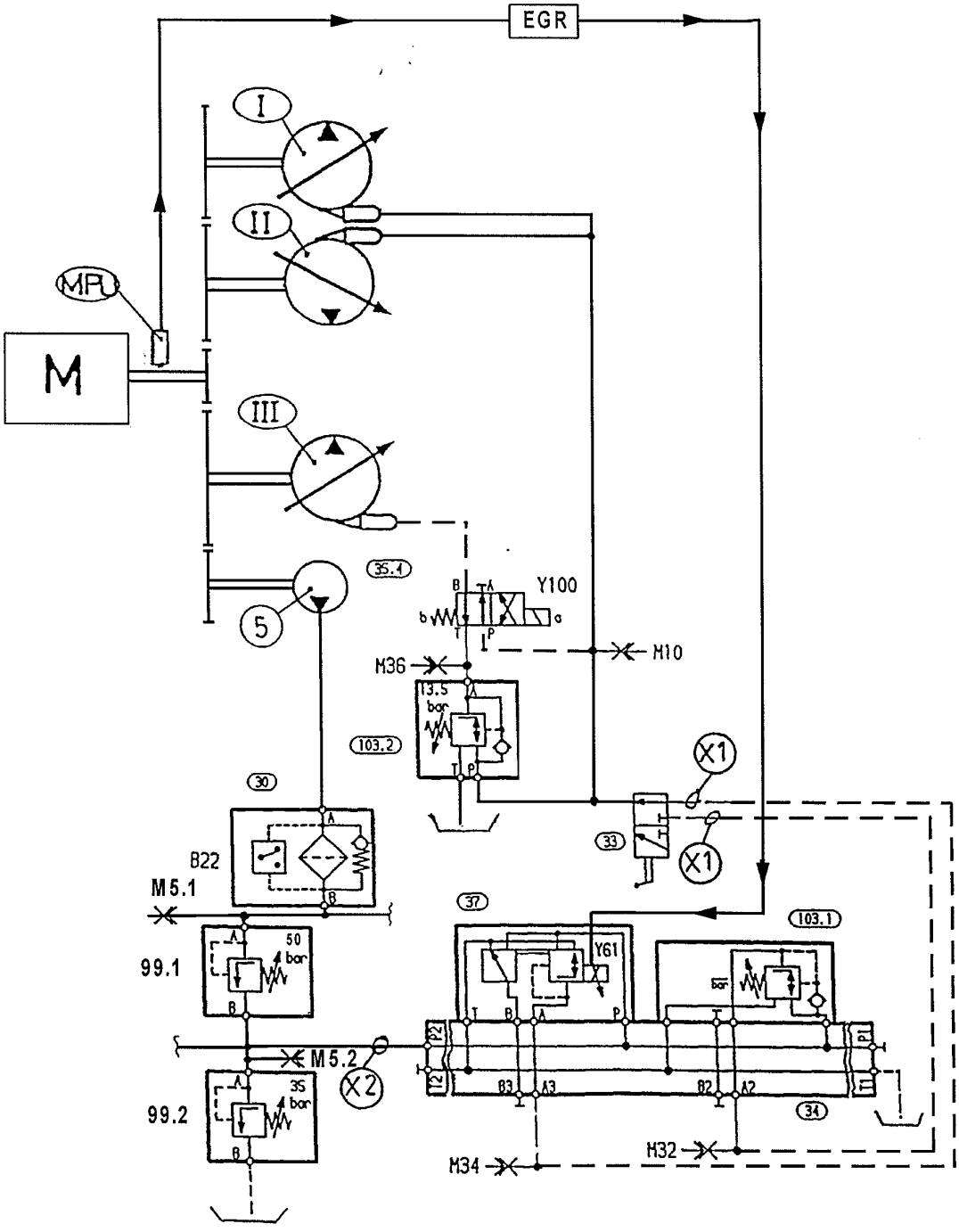
*Section through cover plate

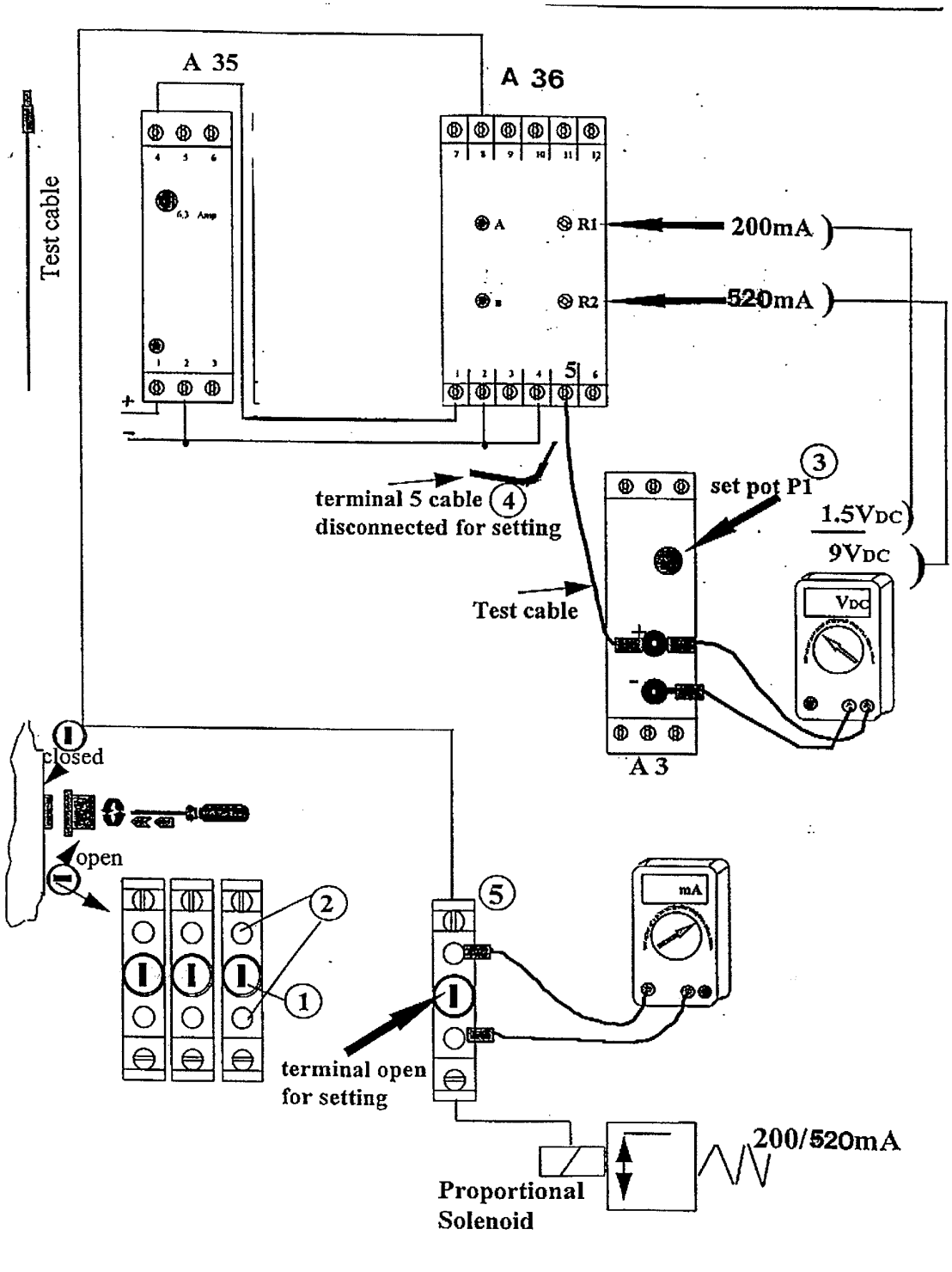
High pressure
Low pressure
Control pressure
Pilot pressure

Z 22232		KOMATSU MINING GERMANY

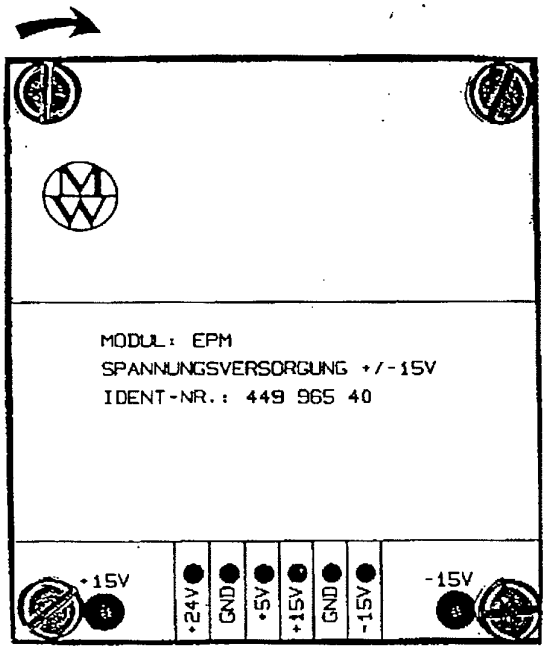


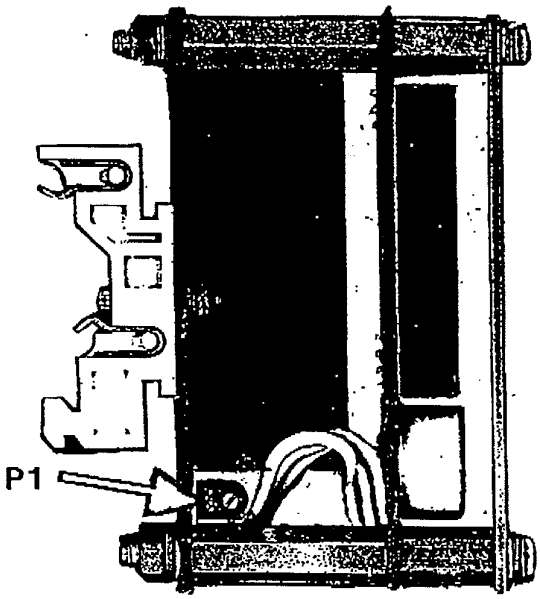


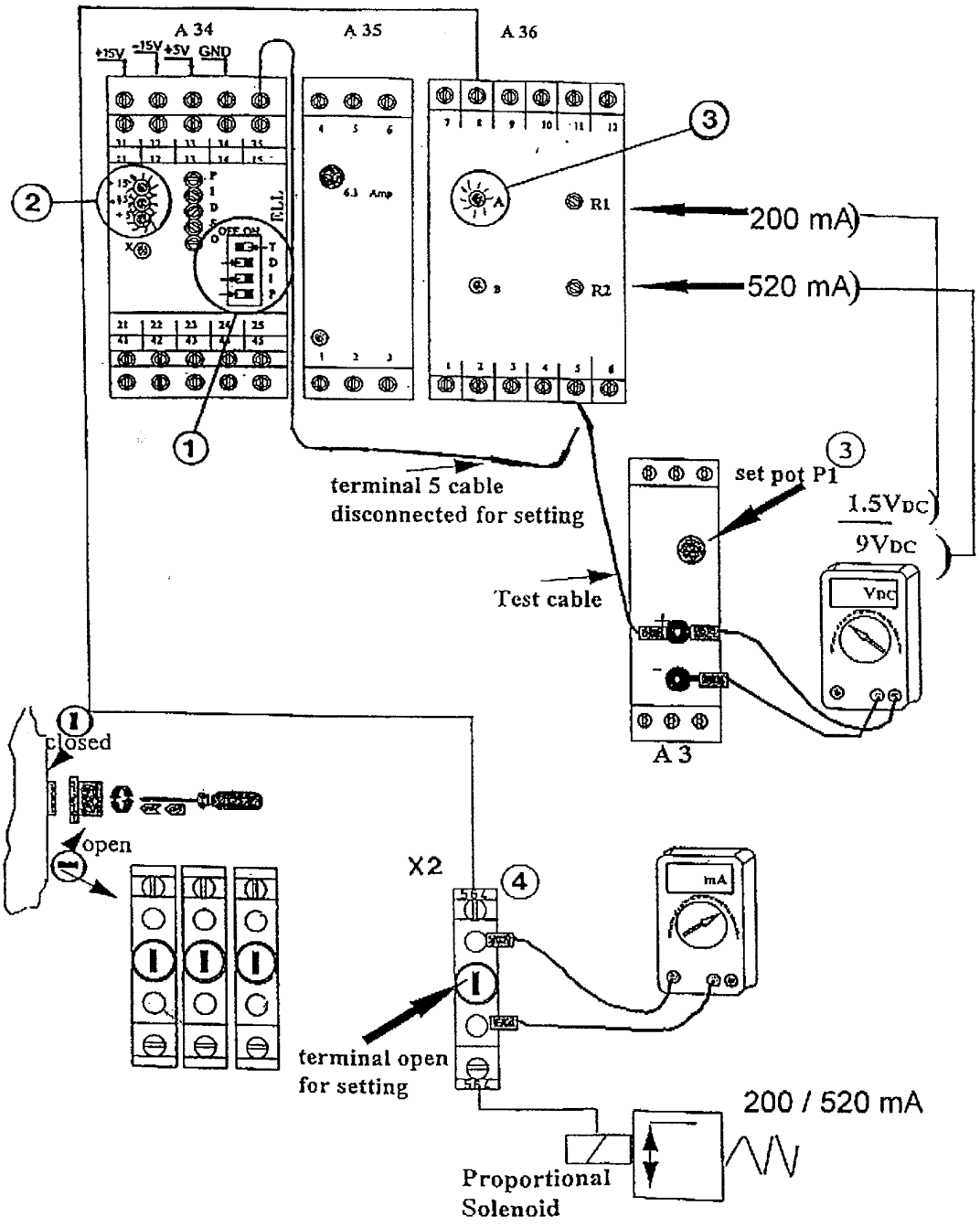

EGR
I
II
III
MPU
M
5
35.1
Y100
M36
M10
13.5 bar
103.2
30
B22
M5.1
99.1
50 bar
M5.2
X2
99.2
35 bar
37
Y61
103.1
33
X1
34
M32
M34


A 35
A 36
Test cable
6,3 Amp
A
R1
200mA
R2
520mA
5
terminal 5 cable 4
disconnected for setting
3
set pot P1
1.5VDC
9VDC
Test cable
VDC
A 3
closed
open
2
1
5
mA
terminal open
for setting
200/520mA
Proportional
Solenoid

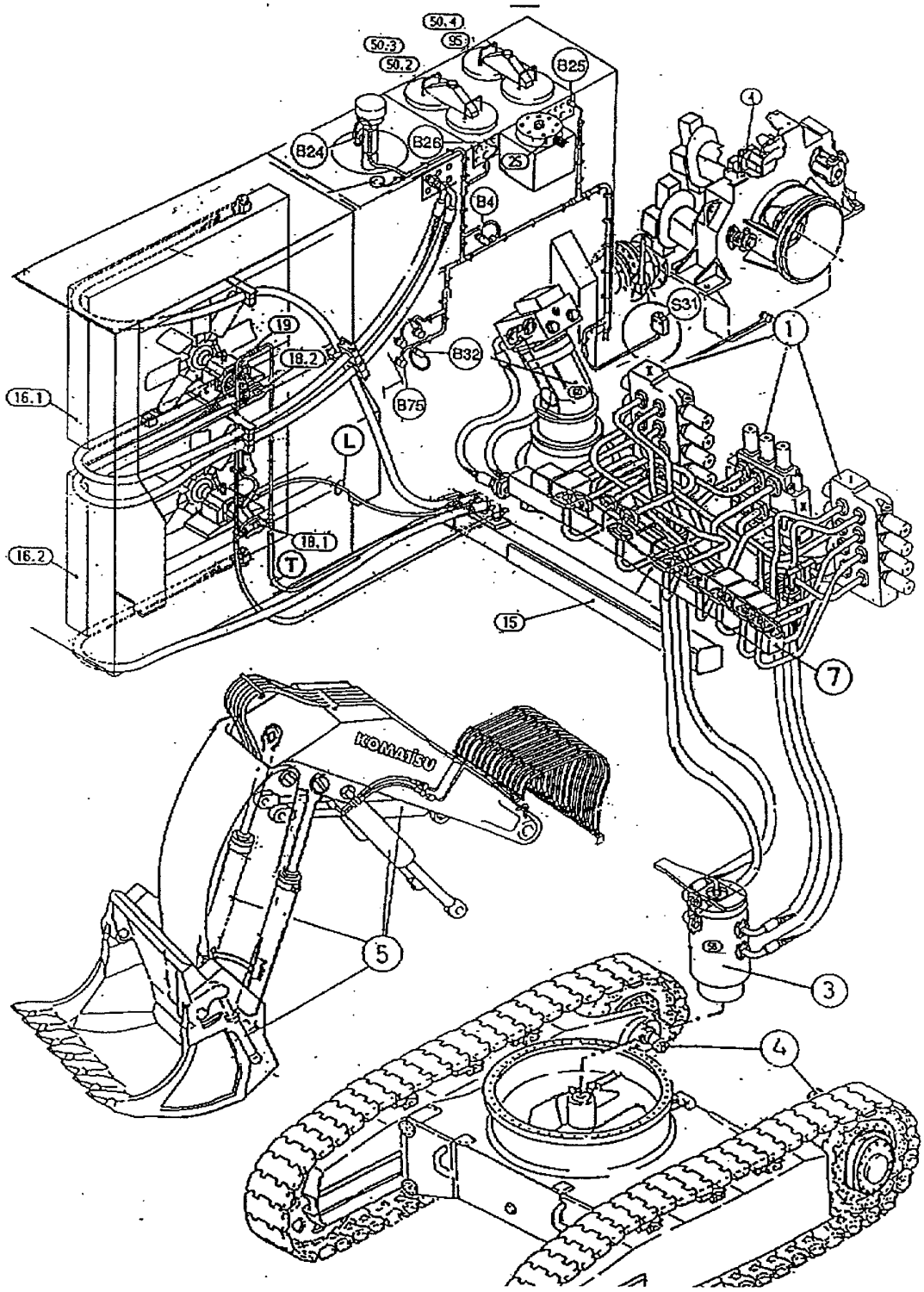
EPM
A 31


MODUL: EPM
SPANNUNGSVERSORGUNG +/-15V
IDENT-NR.: 449 965 40
+15V
+24V
GND
+5V
+15V
GND
-15V
-15V


P1


A 34
A 35
A 36
+15V
-15V
+5V
GND
P
I
D
F.I.L.
OFF ON
T
D
I
P
6.3 Amp
R1
R2
200 mA)
520 mA)
1
2
3
terminal 5 cable
disconnected for setting
set pot P1
1.5VDC
9VDC
VDC
Test cable
A 3
closed
open
X2
4
mA
terminal open
for setting
200 / 520 mA
Proportional
Solenoid

Z 22251		KOMATSU MINING GERMANY



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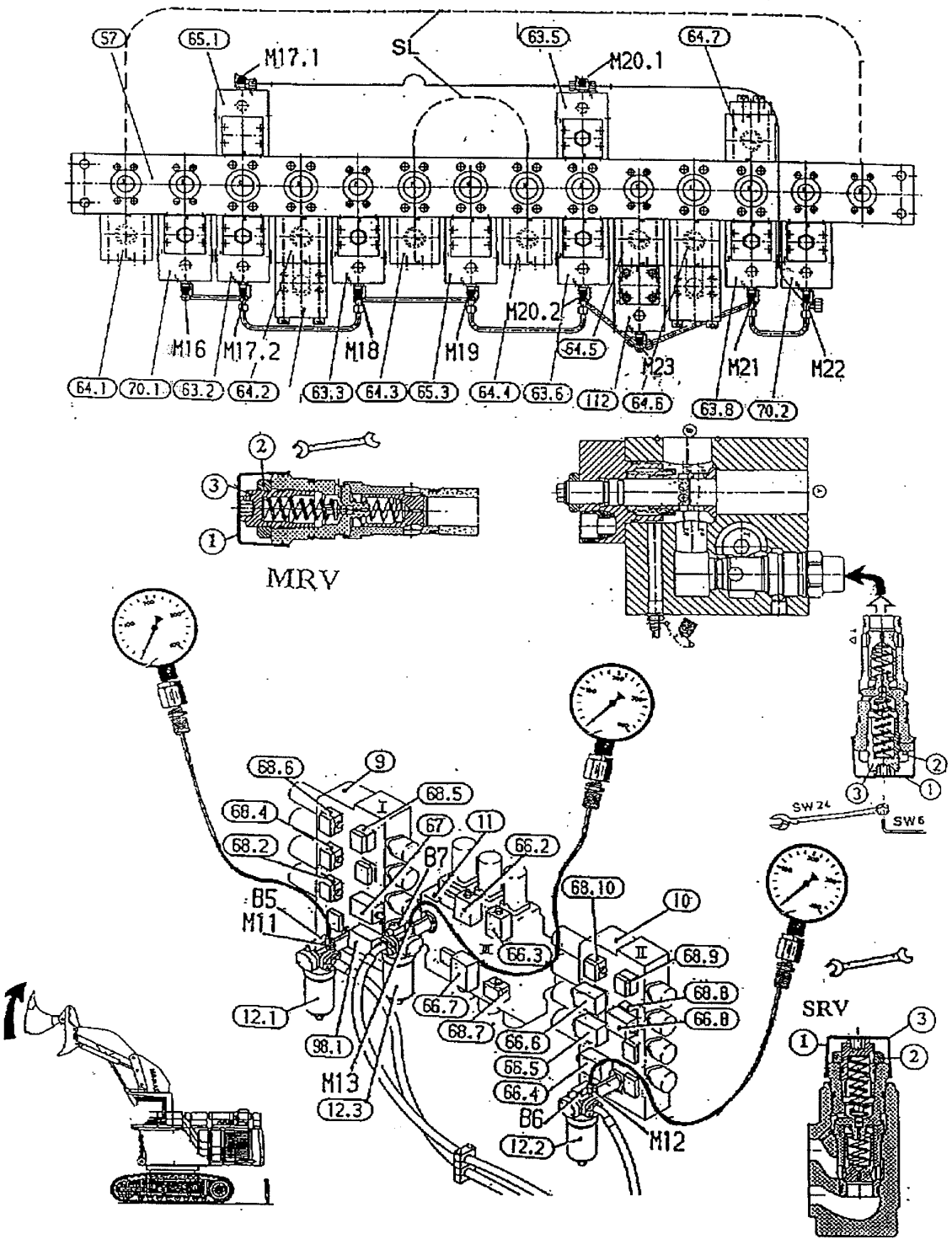

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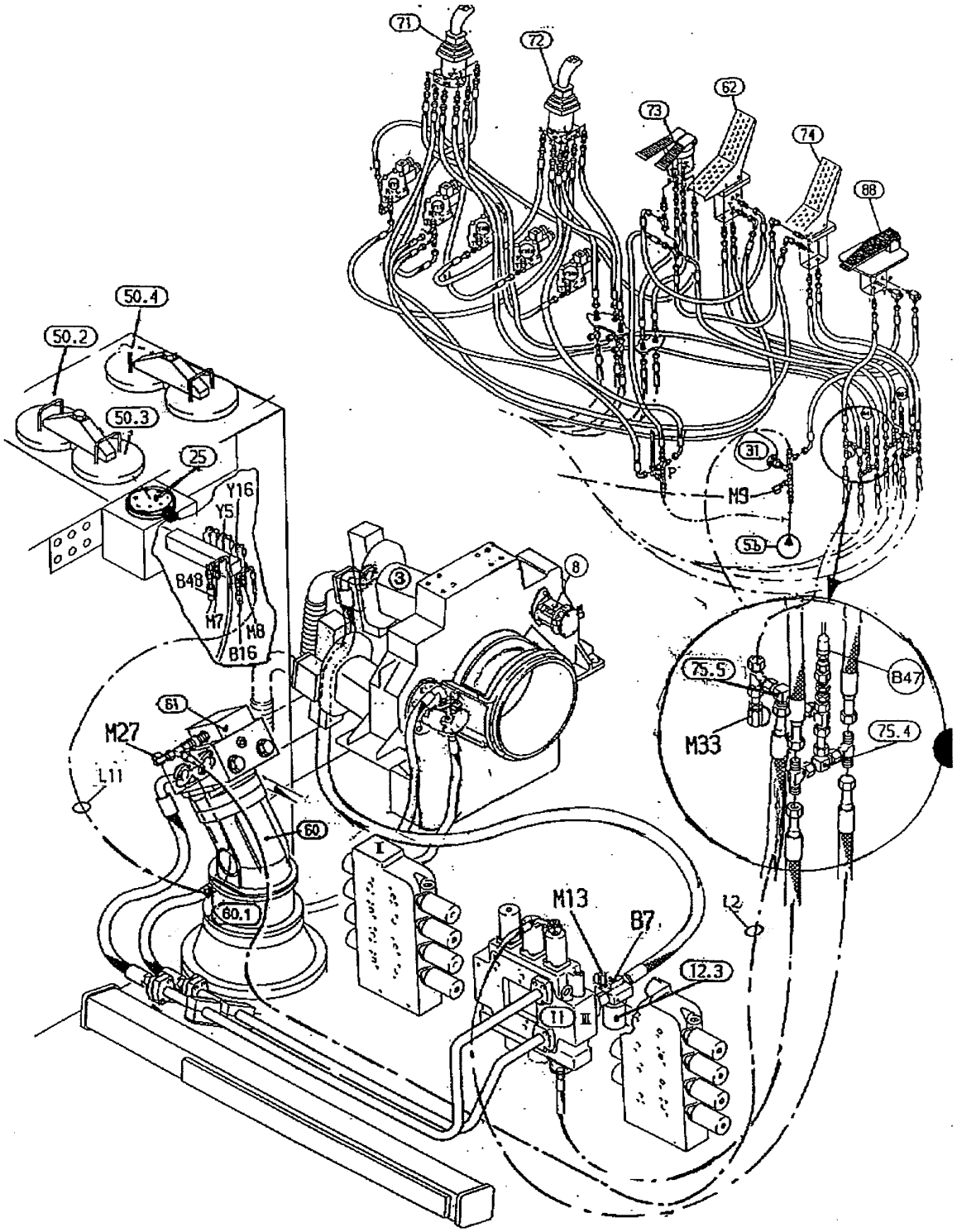

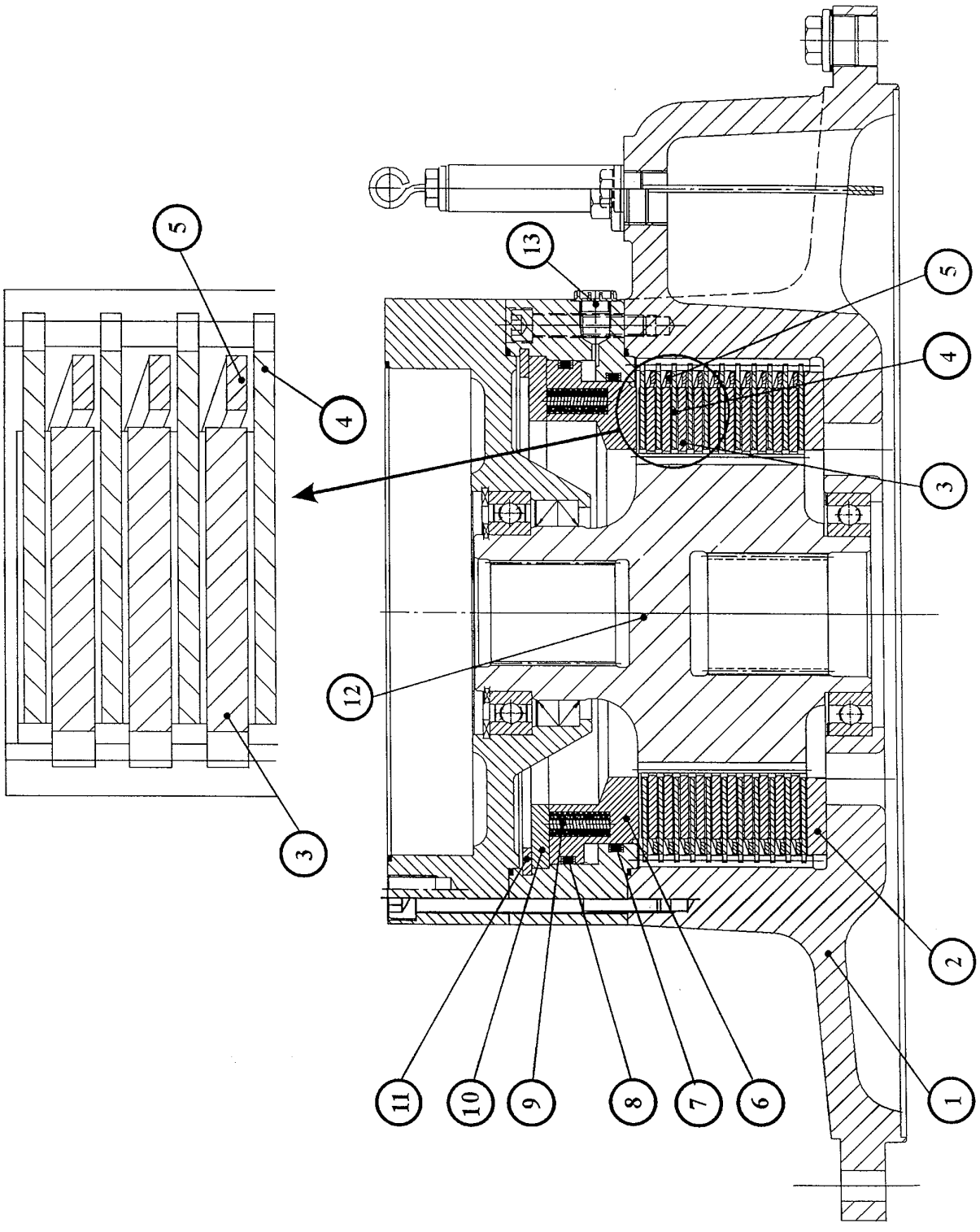

Z 22439

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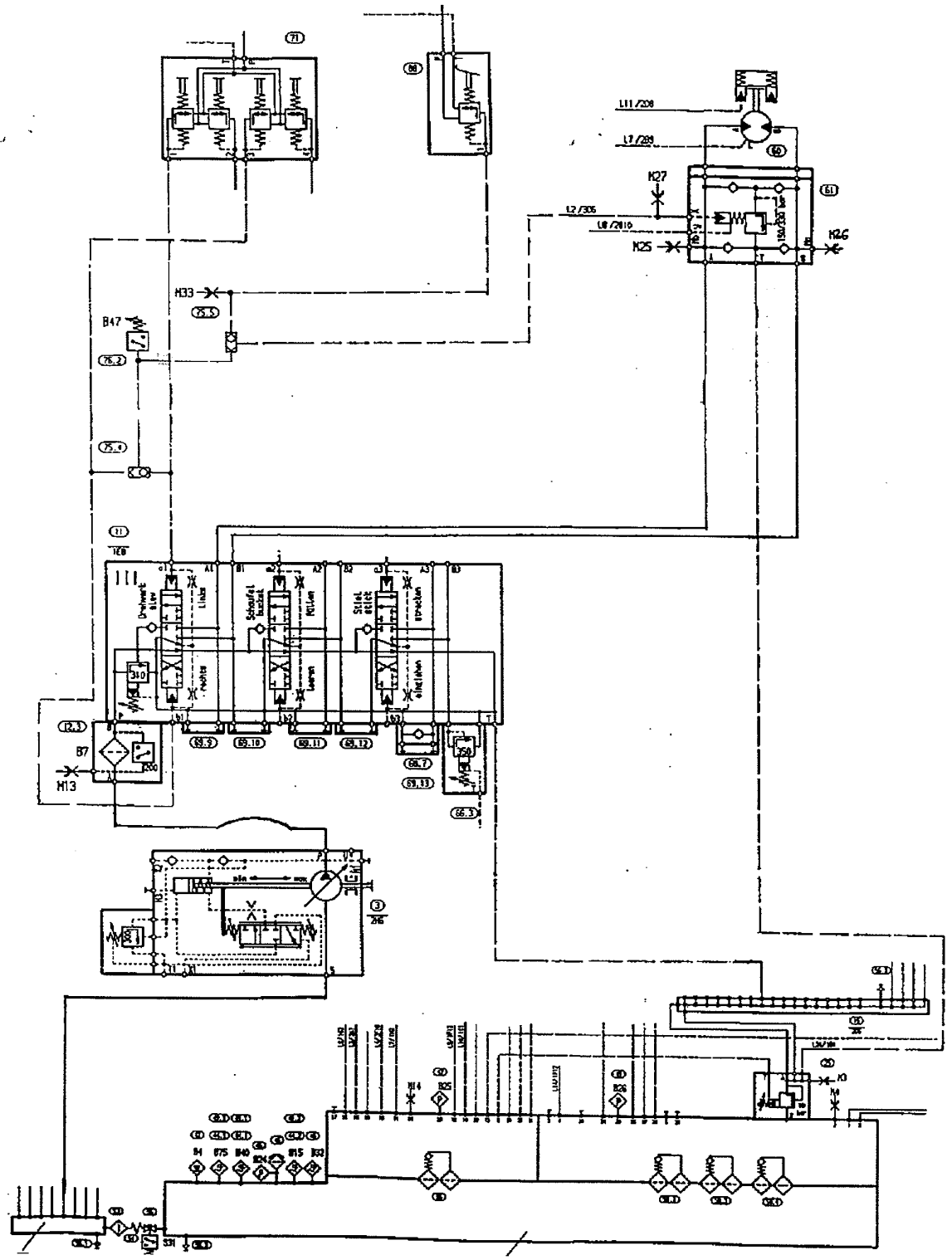

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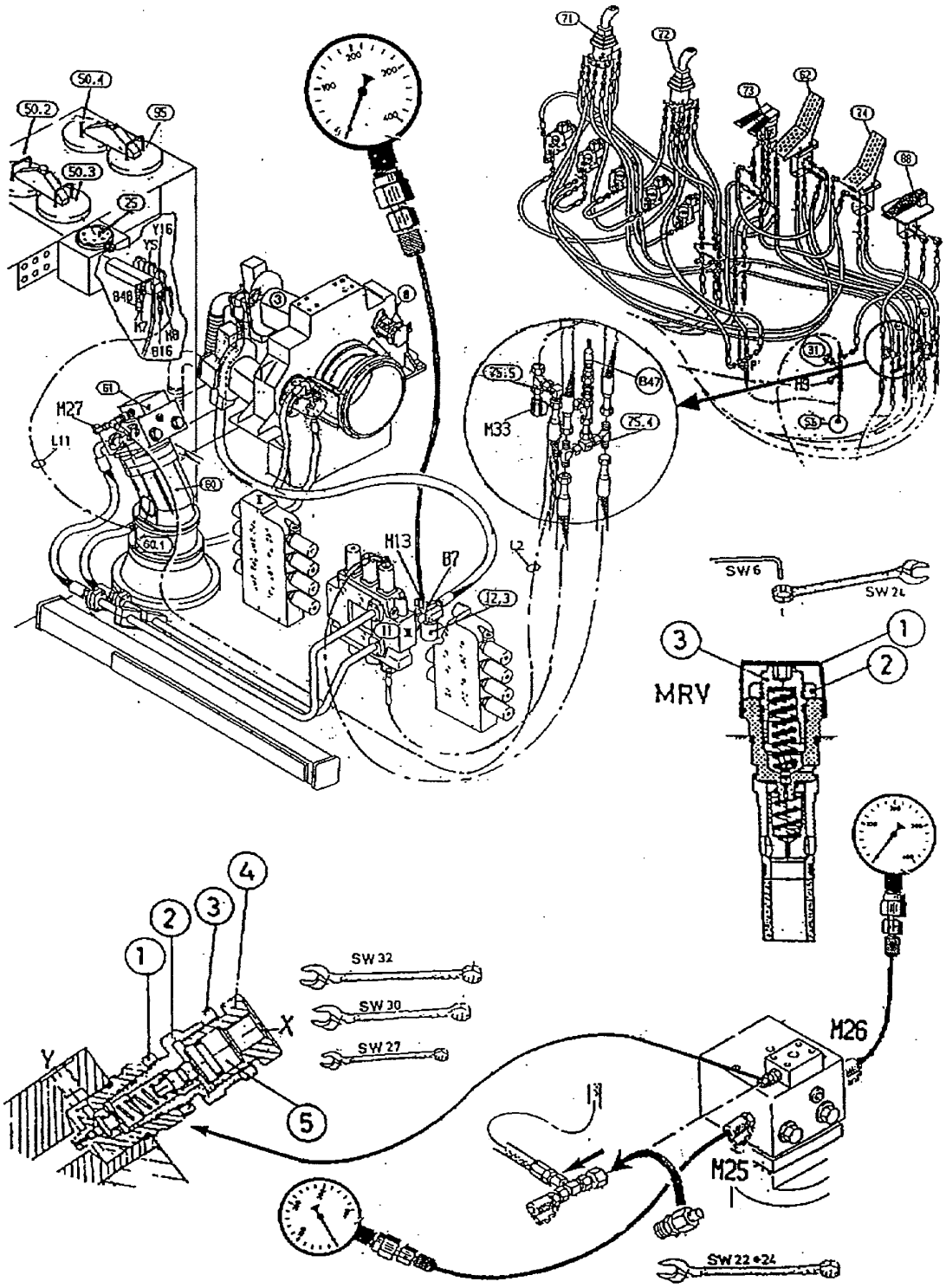

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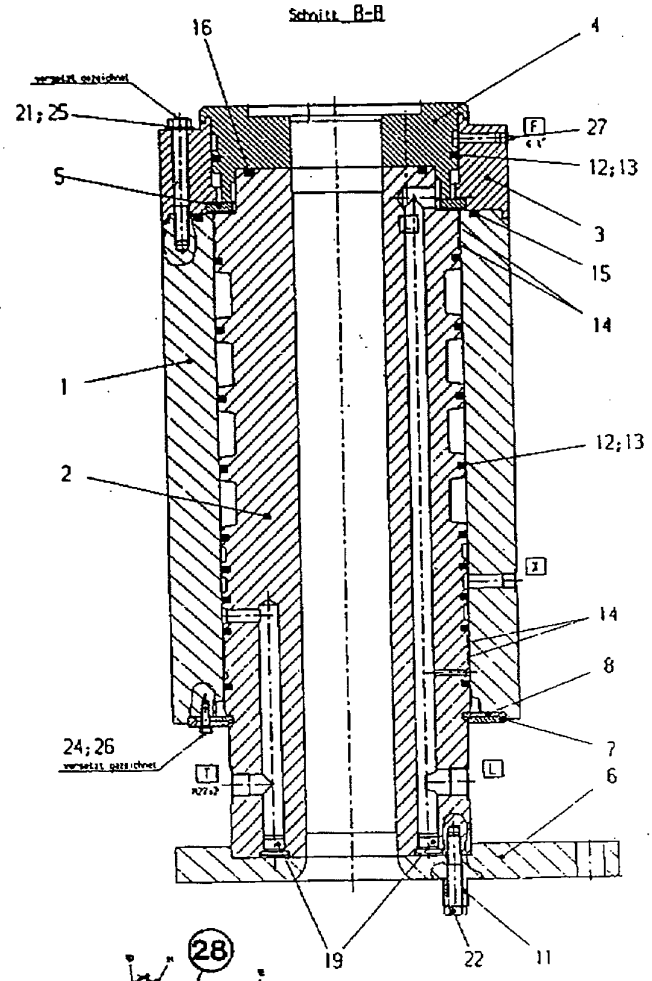

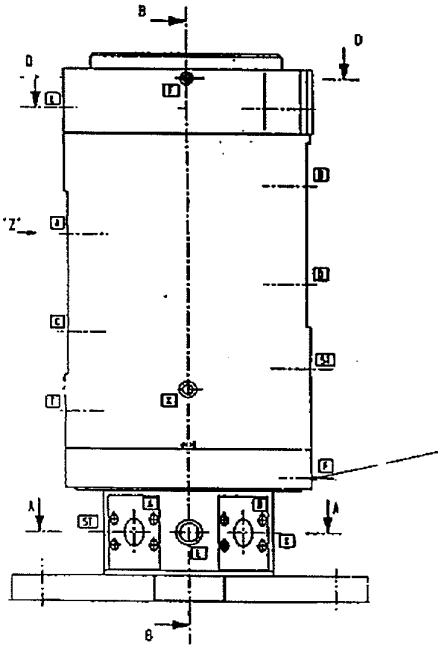

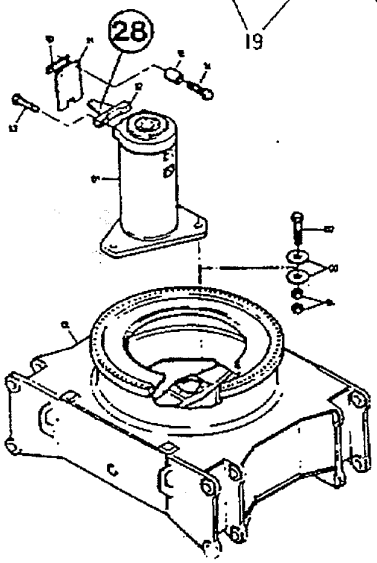

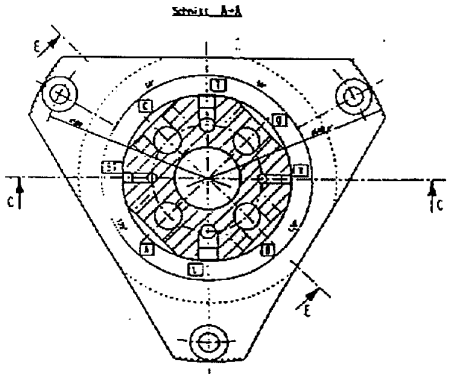

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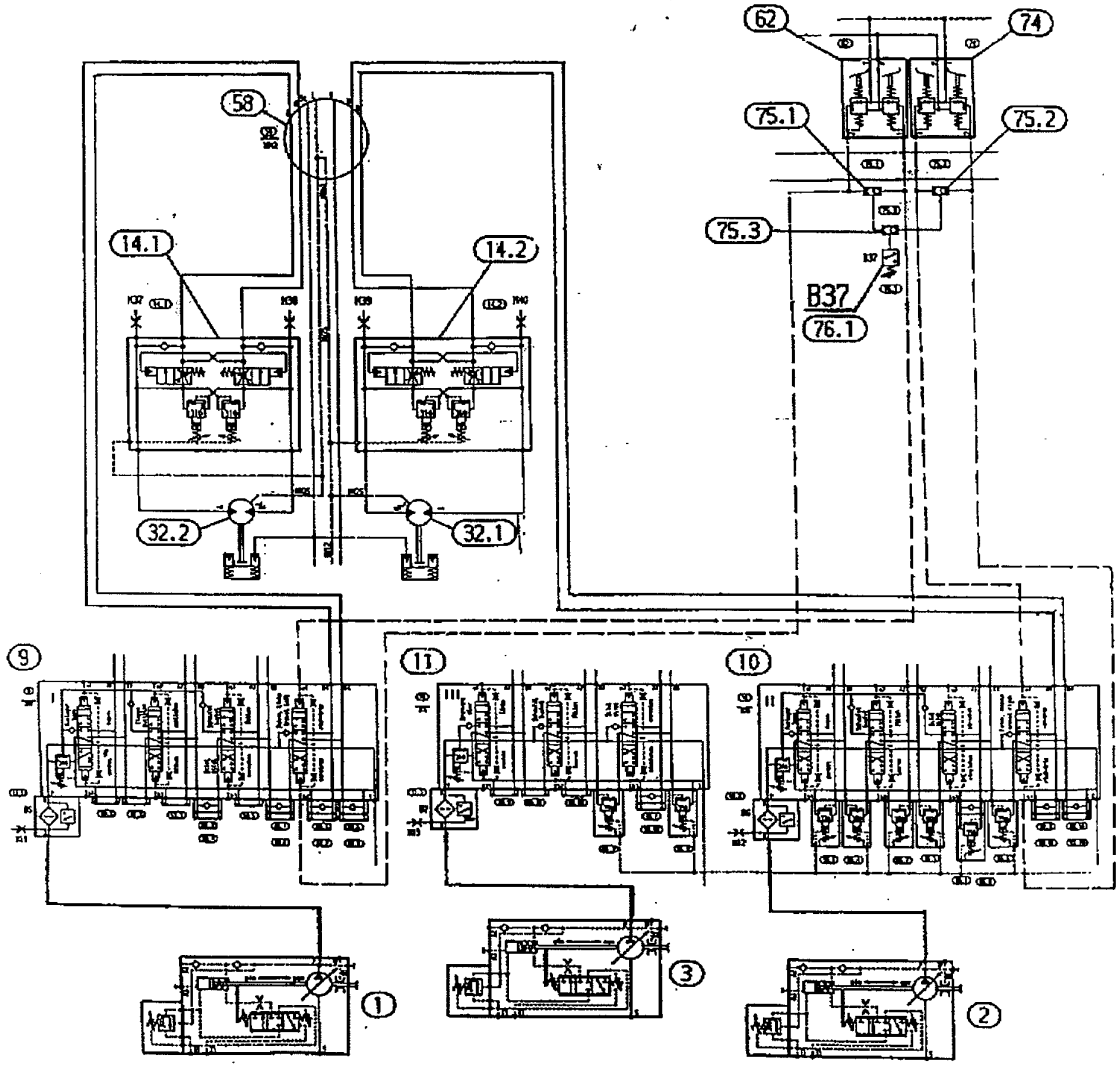

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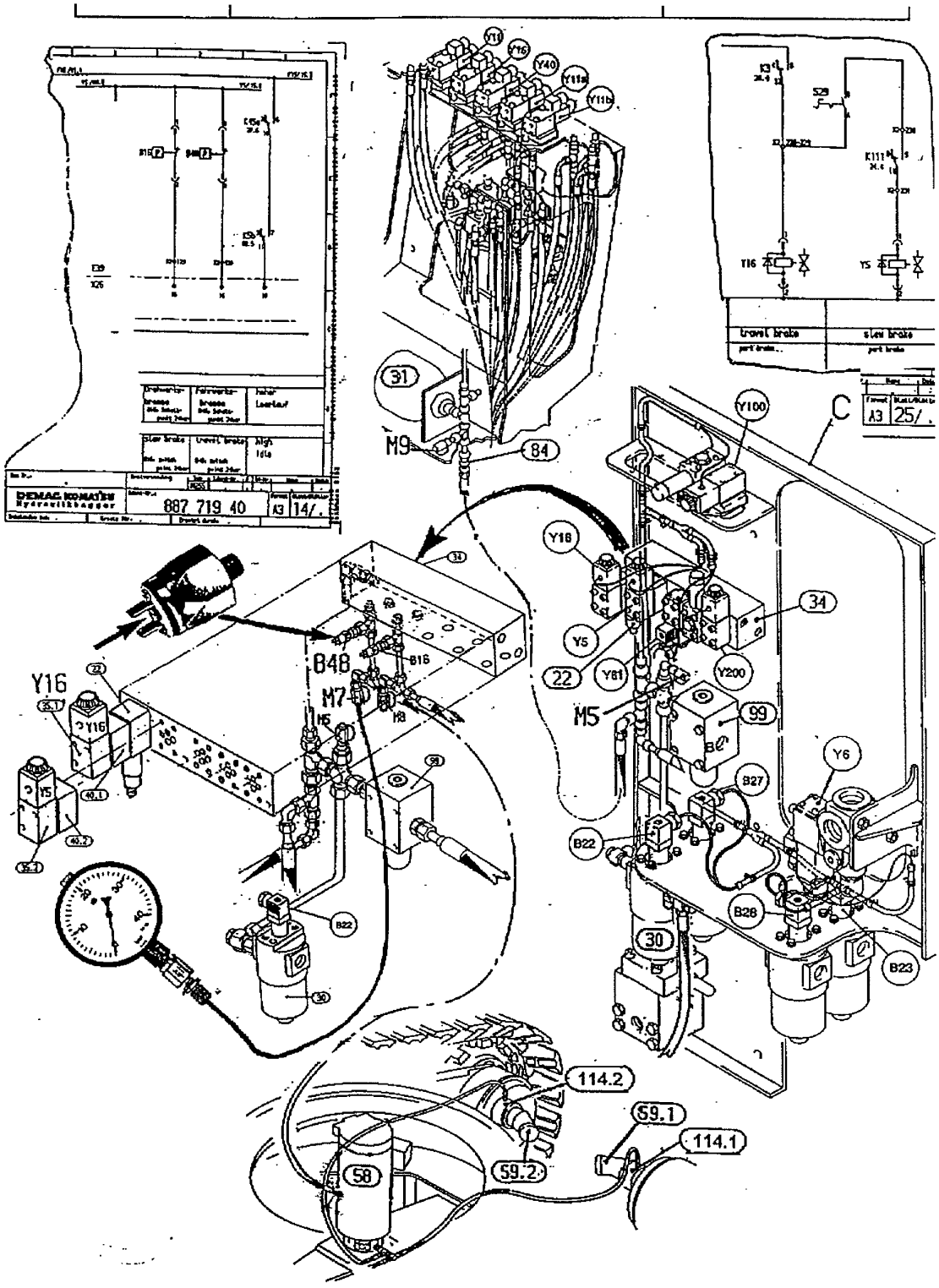

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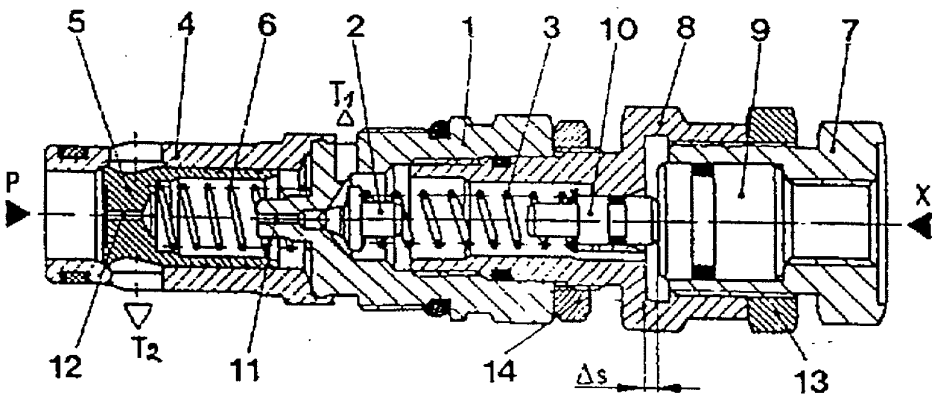

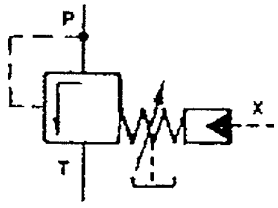

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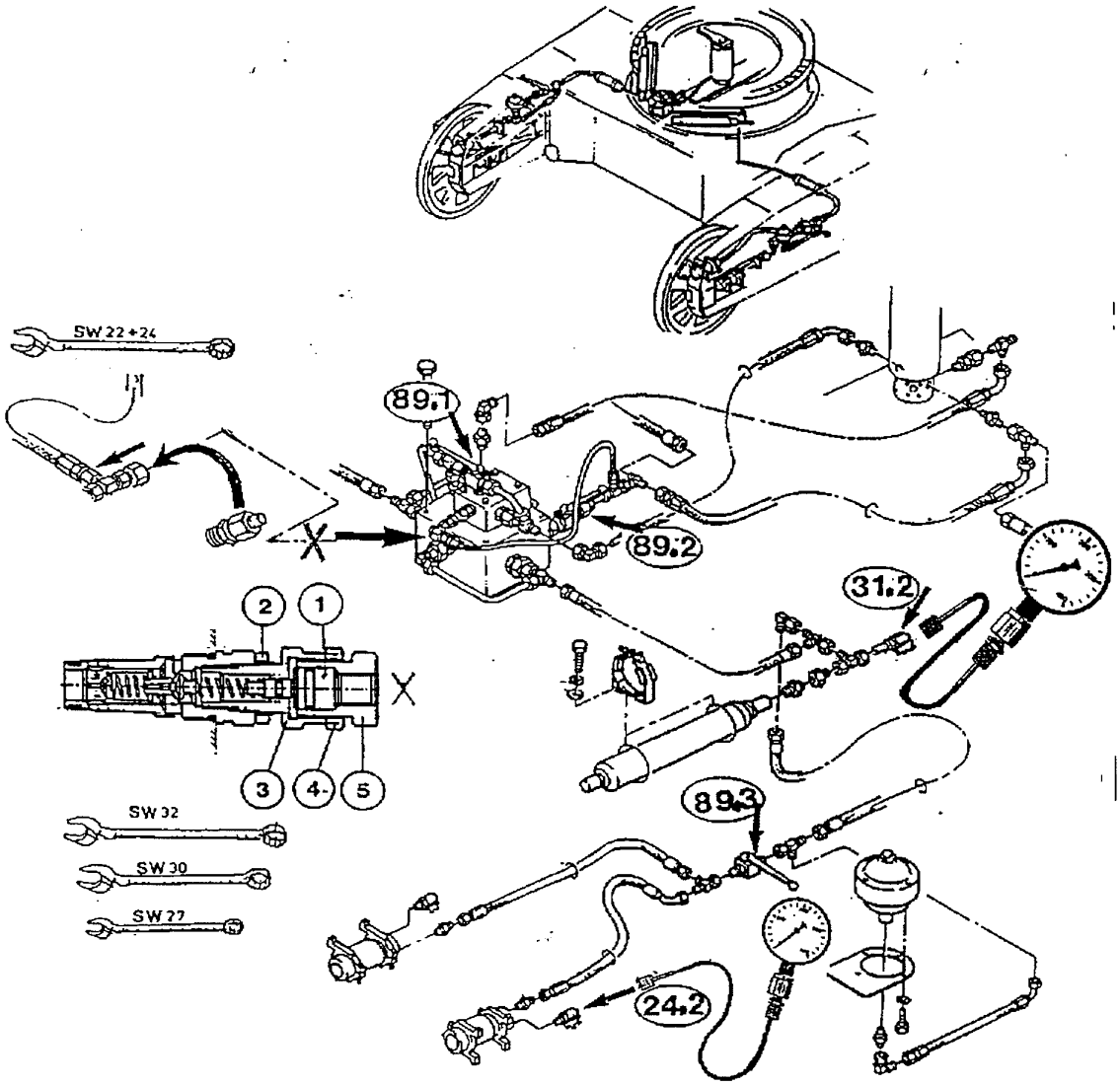

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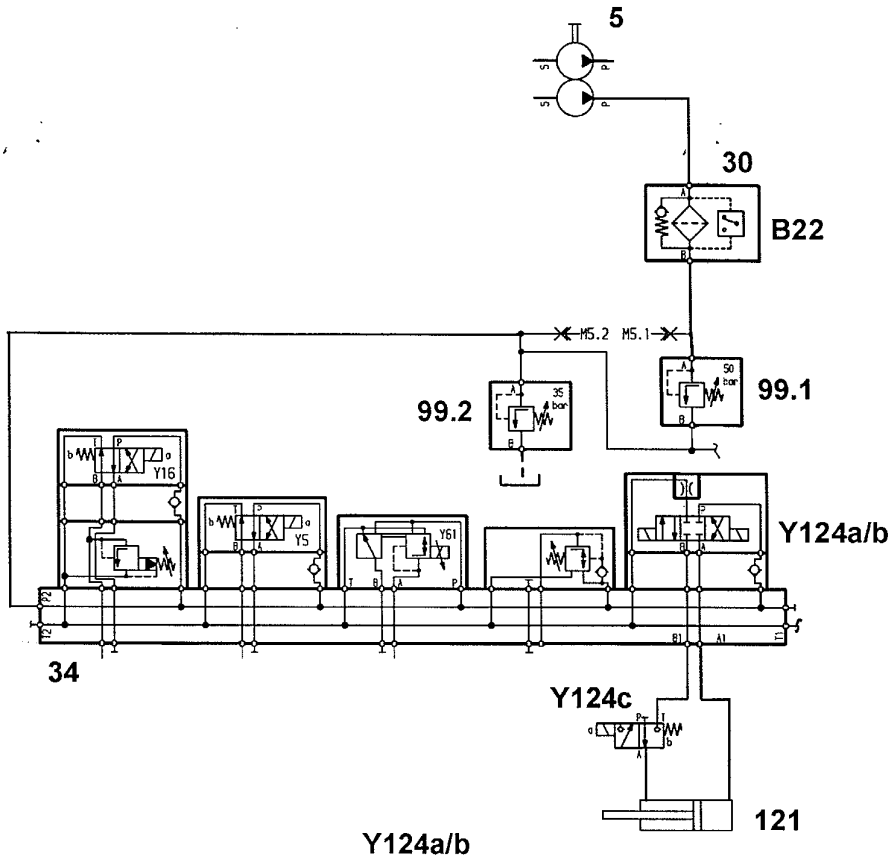
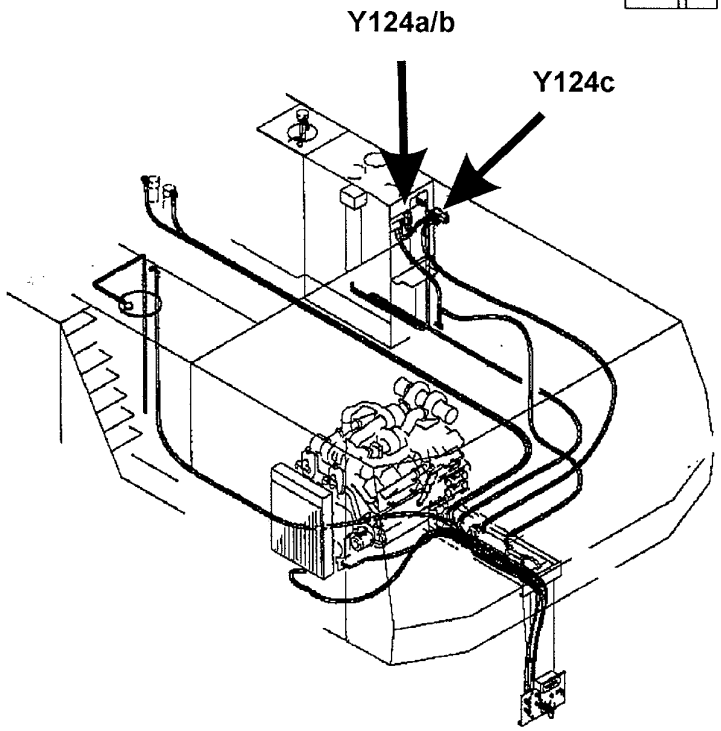




Legend to the hydraulic circuit diagram PC 3000, with DIESEL engine

Z 22369 / 22370 / 22371

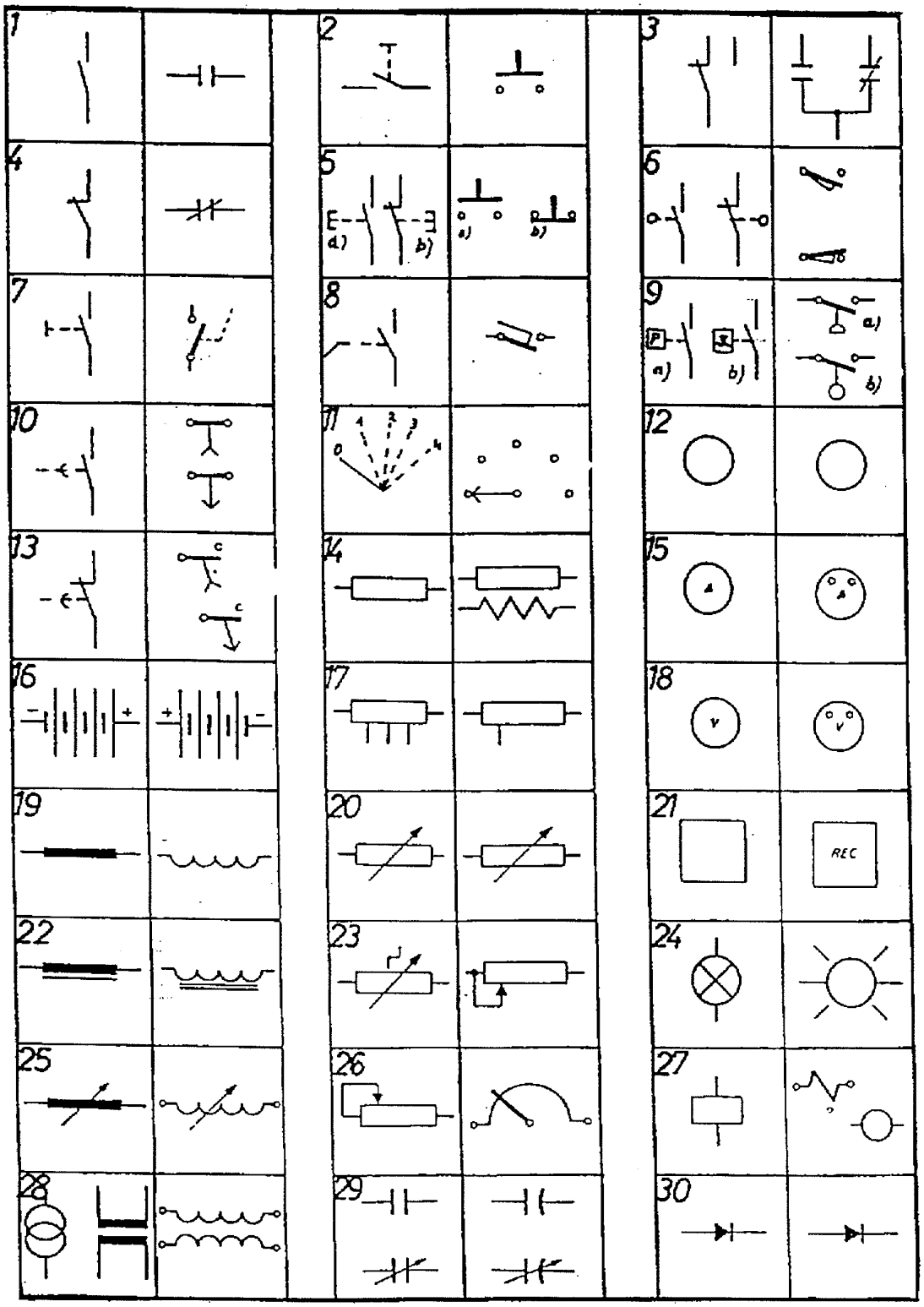
(1-3)	Main hydraulic pumps A7V-SL-1000
(4)	Hydraulic pump, cooler fan drive
(5)	Twin pump, pump regulation / pilot pressure and Pump bearing lubrication
(6)	Hydraulic pump, pump distributor gear lubrication
(7)	Hydraulic pump, hydraulic oil circulation
(8)	Hydraulic pump, generator drive
(9-11)	Main control blocks
(12.1-.3)	High pressure filter, pump 1 - 3
(13)	Check valve, hydraulic oil circulation system
(14.1+14.2)	Hydrostatic travel brake valve
(15)	Return oil collector pipe
(16.1+16.2)	Hydraulic oil cooler
(17.1+17.2)	Gear oil cooler, part of (16.1 + 16.2)
(18.1+18.2)	Hydraulic motors, cooler fan drive
(19)	Check valve, anti cavitation valve for (18.1 + 18.2)
(20)	Pressure filter, pump distributor gear lubrication
(21)	Pressure relief valve, pump distributor gear lubrication
(22)	Pressure relief valve, 50 bar protection for travel park brake
(23)	Press. switch B17 (0.5 bar), min. gear box lube pressure
(24)	Pump distributor gear
(25)	Back pressure valve
(26)	Pressure filter, pump bearing lubrication
(27)	Pressure relief valve, pump bearing lubrication
(28)	Pressure filter, cooler fan drive
(29)	Pressure relief valve, cooler fan drive with Solenoid valve Y6, for cooler fan rpm regulation
(30)	Pressure filter, pump regulation and pilot pressure
(31)	Accumulator, pilot pressure
(32)	Hydraulic motor, adjustable for high speed travel
(33)	Change over for "Emergency / Electronic" pump regulation
(34)	Manifold
(35.1/34)	Solenoid valve Y16 / Manifold, travel gear house brake
(35.2)	Solenoid valve Y5 / Manifold, swing gear house brake
(35.3)	Solenoid valve Y200 / Manifold, Fast speed travel *
(35.4/38.1)	Solenoid valve Y100 / base plate, Flow reduction for swing pump
(35.5/38.3)	Solenoid valve Y11/ base plate, Pilot pressure switch off when travel

continued

REFERENZLISTE FUER LEITUNGS - MESSSTELLEN - POSITIONSNUMMERNKOORDINATEN
UNTERSUCHTER HYDRAULIKPLAN 92759640b

POS/LEI/MS	BLATT 01	BLATT 02	BLATT 03	BLATT 04
1	A11	H10		
2	A 6	H 5		
3	A 9	H 7		
4		G11		
5		H 5		
6		G 3		
9	E12		D 9	
10	E 4		D 3	
11	E 8		C 6	
12.01	D12			
12.02	D 4			
12.03	D 8			
14.01			F12	
14.02			F10	
15	A 1	C 6		
18.01		B 3		
18.02		B 3		
19		B 3		
20		E 2		
21		E 2		
22		E 9		
23		D 2		
24		A 3		
25		B 6		
26		F 3		
27		E 3		
28		E 3		
29		E 3		
30		F 4		
31			H11	
33		E 7		
34		D 6		
35.01		E 9		
35.02		E 8		
35.04		E10		
35.06			H 9	
35.08			H10	
35.11		E 4		
35.12		B 7		
36.03			D 6	
37		E 7		
38.01		E10		
38.02		E10		
38.04			H 9	
38.06			E 3	
38.07			E 2	
38.10		E 4		
38.11			E 7	
38.12			H10	
38.13			D 4	
38.14		E 4		
38.15		D 6		
38.17		B 7		
39.01		D 9		
39.02		D 8		
40.01		E 8		
40.02		E 8		
40.03		E 5		
41		B 8		
42		B 9		
43.01		B11		
43.02		B11		
44.01		B11		

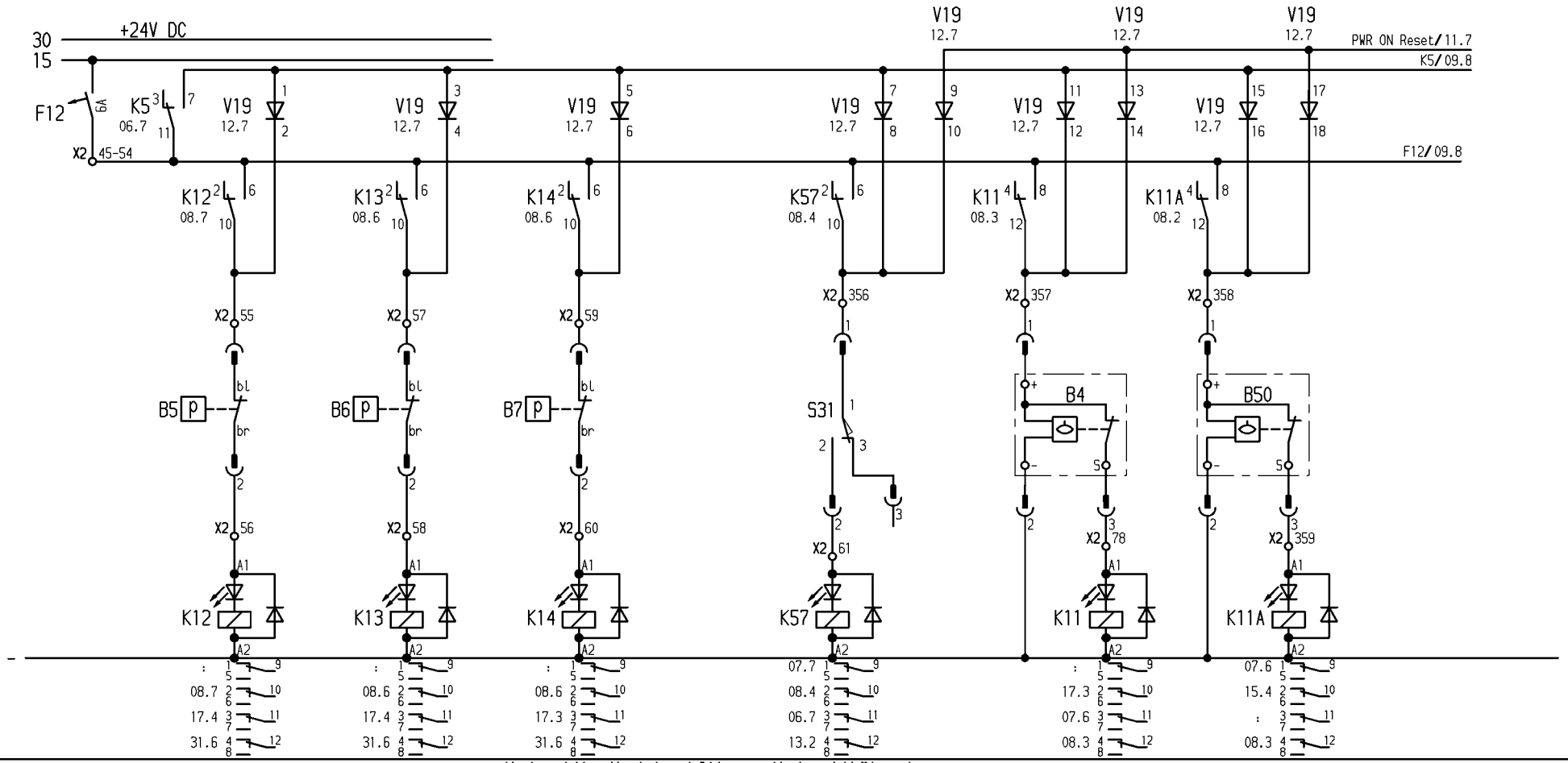
Z 22372		KOMATSU MINING GERMANY



Cont'd.

Component Code	Page	Function
D34	05	Min. engine oil pressure 2.8 bar at high idle for 6 sec.
D35	06	Min. coolant pressure 0.3 bar at low idle for 6 sec.
D36	06	Min. coolant pressure 1.0 bar at high idle for 6 sec.
E13	19	Cigarette lighter, operators dash board
E14	26	Cummins engine controller, on PT pump of engine
E15	16	EFM, Electronic Fuel Measurement, Below fuel tank
E25	17	Voltage converter 24 / 12 Volt, for radio, operators dash board
E26	22	Air condition control panel, Cabin ceiling
E34	10-12	ETM Input module, Master, X2 Panel
E35	09	ETM- Display
E36	28	EFD- Electronic Frequency converter for RPM display on ETM
E39	13-15	ETM Input module, Slave, X2 Panel
F1	01	Main fuse 50 A, L30 + L15
F1a	01	Main fuse 50 A, Working lights on cabin roof and oil cooler
F1b	01	Main fuse 50 A, Working lights on cab support and counter weight
F2	17	16A, Horn compressor motor M3 and cold start aid solenoid Y2
F4	03	16A, Engine shut down chain and stop relay
F5	18	16A, Wind shield washers and wipers
F6	19	16A, Lights machinery house + cab, sockets, cig. lighter + relay K44
F9	22	25A, Air condition control panel and magnetic clutch Y4
F10	01	1A, Ammeter
F11	02	6A, Control of reset relays and engine stop
F12	04	6A, Supply to monitoring circuits
F15	08	6A, Blind out timers and supply to reporting pages of ETM
F16	16	6A, Analogue gauges, instrument lights and E15 EFM
F20	27	6A, CENTRY engine controller + Chain, shift engine to low idle
F21	23	16A, Supply to Y6, Y11, Y11a, Y11b, Y15, Y100, Y40, Y16 + Y5
F23	29	6A, Central lubrication system
F25	30	6A, Swing ring lubrication system
F26	22	16A, Cabin pressurizing blower
F61	28	10A, Supply to electronic pump regulation system
G1-G4	01	4 x 200 AH

continued



Hydraulik: Hochdruckfilter, Hydrauliköltank

Überwachung der Hochdruckfilter

Pumpe I | Pumpe II | Pumpe III

B5, B6, B7, B8 : Differenzdruckschalter
Schaltpunkt 8.5 bar

Absperrklappe Ölbehälter

S31: Schalter geschlossen, wenn die Absperrklappe im Betriebszustand ist: Ventil geöffnet

Hydr. Ölstand

zu niedrig | Nachfüllanzeige

B4 & B50: geschlossen, wenn öl vorhanden

hydraulic: high pressure filter, hydraulic oil tank

monitoring of high pressure filter

pump I | pump II | pump III

B5, B6, B7, B8 : difference pressure switch
switching point 8.5 bar

hydr. reserv. shut off unit

S31: Switch closed if shut off valve is in operation position, which means: valve is open

hydraulic oil level

too low | refill level

B4 & B50: closed if oil sensed

	Datum	Name
Bearb.	08-JAN-04	Wydra
Gepr.	.	.
Abt.:	8125	
Norm	.	

Wiederholverwendung: Typ . | Ident-Nr. . | F .

Vordruck f. Schaltpläne | Computererstellte Zeichnung (CAD)

Elektroplan

Bau Nr.: 06199

Erstverw. | Typ: PC 3000-1 | Ident-Nr. . | F .

ÄM-Nr.: E6525 | Name . | Datum .

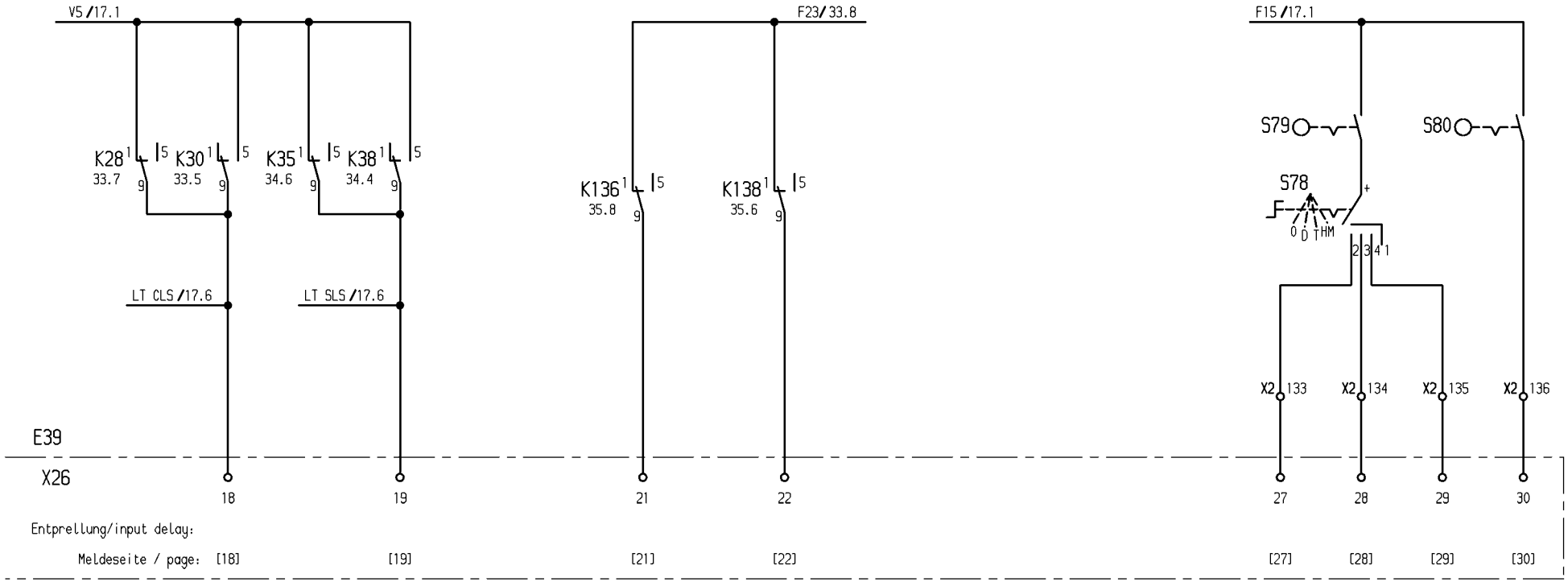
KOMATSU MINING GERMANY

Ident-Nr.: 927 595 40

Format: A3 | Blatt/Blätter: 08/ .

Entstanden aus: . | Ersatz für: . | Ersetzt durch: .

SIA | Datum . | 7 | 6 | 5



Eingangsmeldemodul (Slave)

Störung Schmieranlage			Fettfaß leer			Service-Einstellungen
Zentralanlage	Drehkranz		Zentral-anlage	Drehkranz		S79 : Zündschalter Identnr. 551 271 40 Schließung M600 S80 : Zündschalter Identnr. 551 272 40 Schließung M601

pickup module unit (slave)

fault lubrification system			grease barrel empty			service-adjustments
central system	slewing		central system	slewing		S79: ignition switch PN 551 271 40 code M600 S80: ignition switch PN 551 272 40 code M601

	Datum	Name	Wiederholverwendung Typ	Ident-Nr.	F
Bearb.	07-JAN-04	Wydra	.	.	.
Gepr.	.	.	.	.	.
Abt.:	8125		.	.	.
Norm	.		.	.	.

Vordruck f. Schaltpläne | Computererstellte Zeichnung (CAD)

Elektroplan

Bau Nr.: 06199

KOMATSU MINING GERMANY

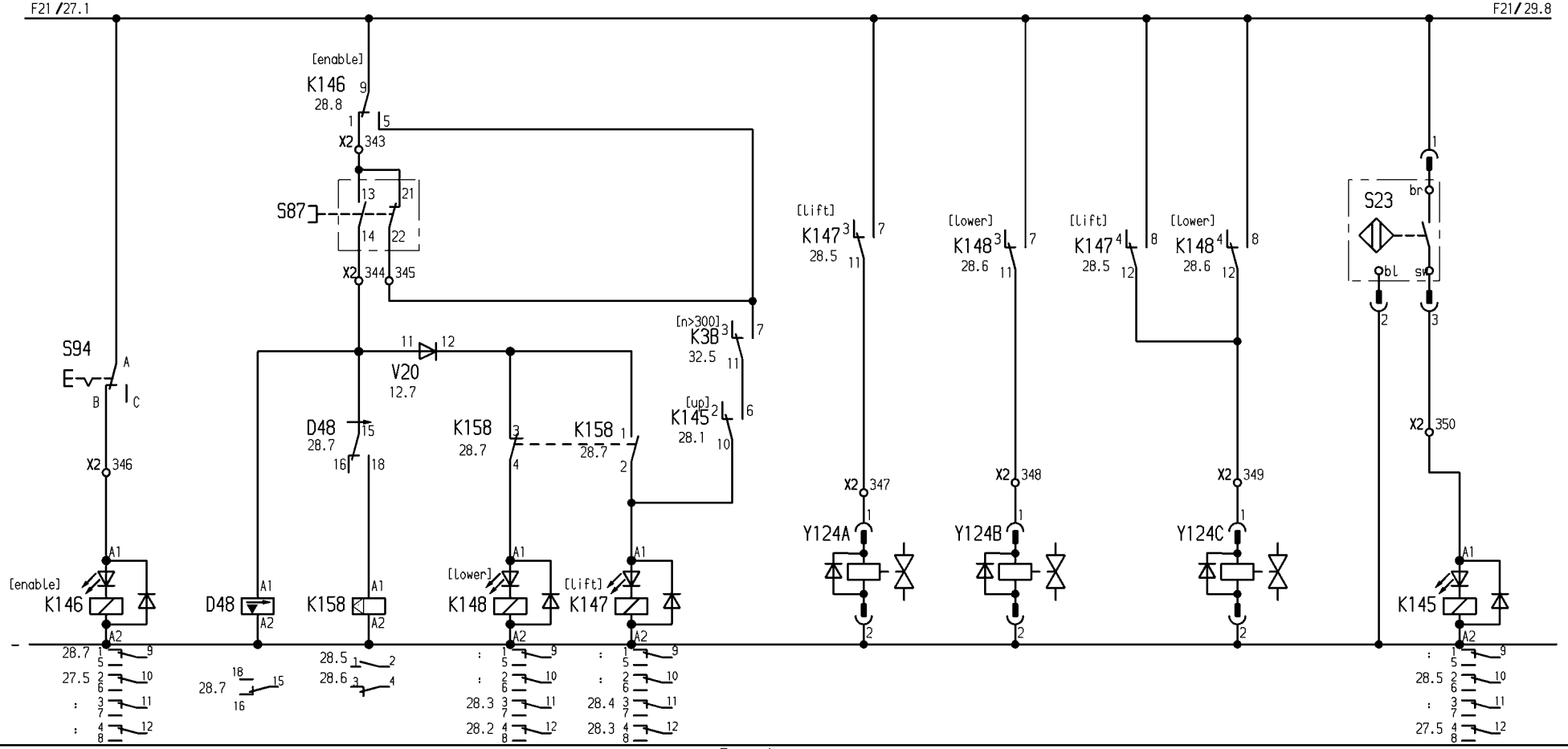
Erstverwendung	Typ	Ident-Nr.	F	ÄM-Nr.	Name	Datum
	PC 3000-1	.	.	E6525	.	.

Ident-Nr.: 927 595 40

Format A3 | Blatt/Blätter 18/ .

Entstanden aus: . | Ersatz für: . | Ersetzt durch: .

SIA | Datum . | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



Betankungsarm

S94: Freigabeschalter in Kabine (geöffnet = Freigabe)

S87: Zugschalter für Tankarm

K158: Stromstoßrelais

K148: Senken

K147: Heben

D48 K158 1s

Heben	Senken	Stop (fixieren)	S23: Endschalter Betankungsarm geschlossen = oben
		Y124c: Sitzventil	

refilling arm

S94: enable switch in cab (opened = enable)

S87: pull switch for refilling arm

K158: pulse relay

K148: lower

K148: raise

raise	lower	stop (fix)	S23: limit switch refilling arm closed = upper position
		Y124c: refilling arm park valve	

	Datum	Name	Wiederholverwendung Typ	Ident-Nr.	F
Bearb.	07-JAN-04	Wydra	.	.	.
Gepr.	.	.	.	.	.
Abt.:	8125		.	.	.
Norm	.		.	.	.

Vordruck f. Schaltpläne | Computererstellte Zeichnung (CAD)

Elektroplan

Bau Nr.: 06199

KOMATSU MINING GERMANY

Erstverwendung	Typ	Ident-Nr.	F
	PC 3000-1	.	.

ÄM-Nr.	Name	Datum
E6525	.	.

Ident-Nr.: 927 595 40

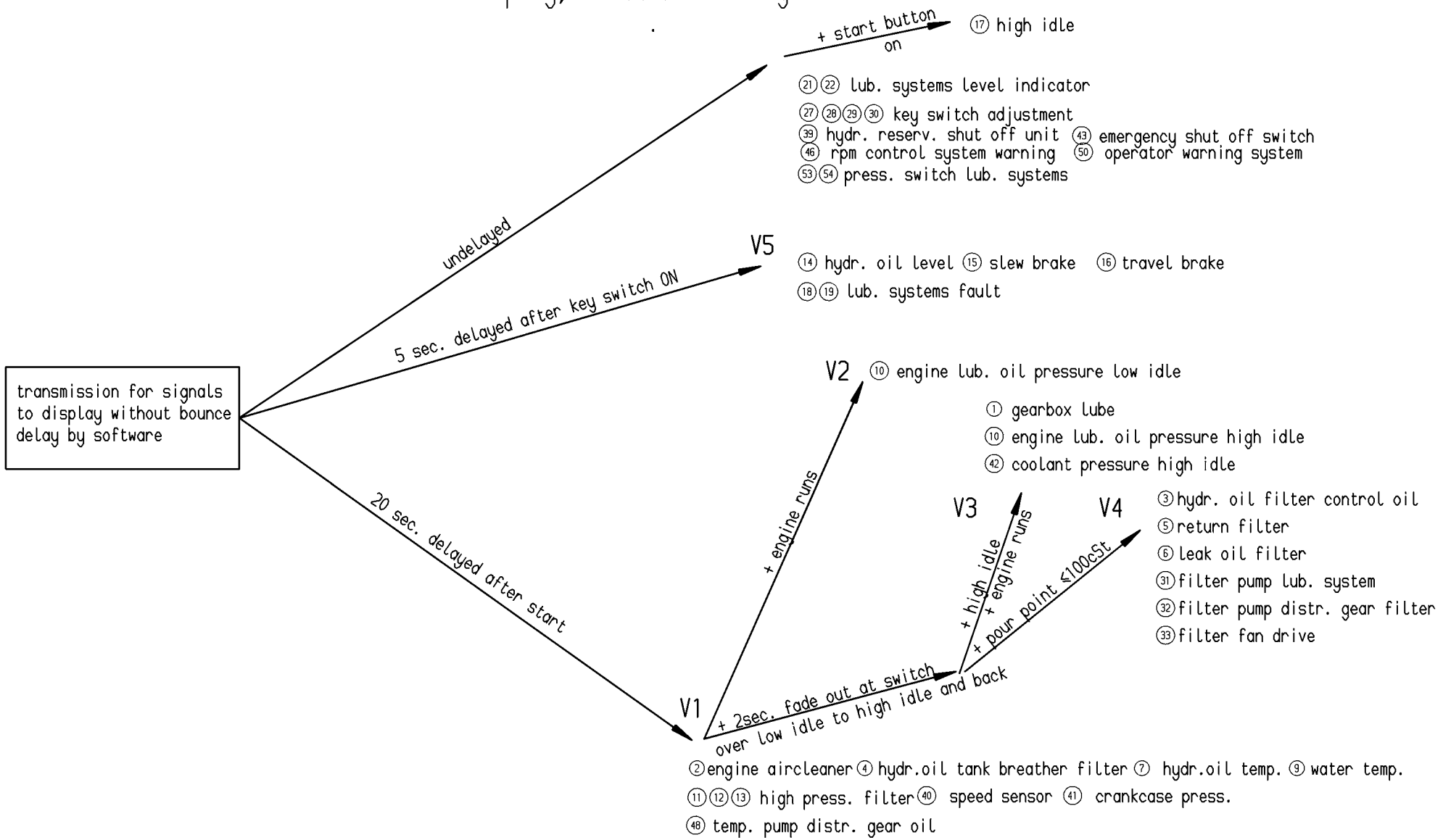
Format A3

Blatt/Blätter 28/.

Entstanden aus: . | Ersatz für: . | Ersetzt durch: .

SIA | Datum | . | 7 | 6 | 5

display, treatment of signals



	Datum	Name	Wiederholverwendung Typ	Ident-Nr.	F
Bearb.	07-JAN-04	Wydra	.	.	.
Gepr.	.	.	.	.	.
Abt.:	8125		.	.	.
Norm	.		.	.	.
SIA	Datum	.	7	6	5

Vordruck f. Schaltpläne | Computererstellte Zeichnung (CAD)

Elektroplan

Bau Nr.: 06199

KOMATSU MINING GERMANY

Entstanden aus: . | Ersatz für: . | Ersetzt durch: .

Erstverwendung	Typ	Ident-Nr.	F
	PC 3000-1	.	.

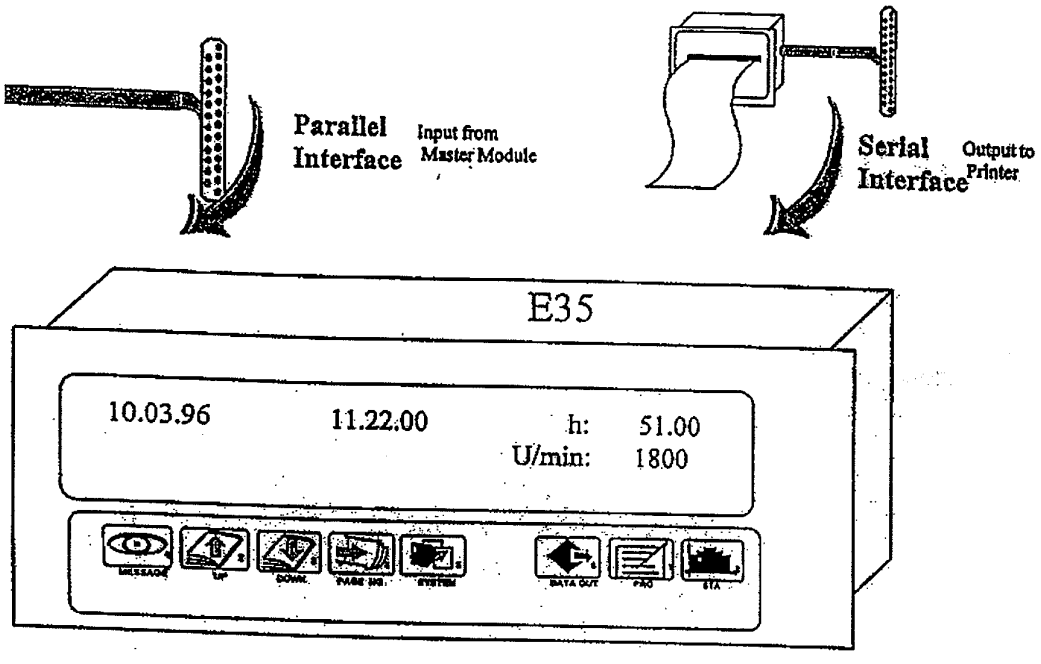
ÄM-Nr.	Name	Datum
E6525	.	.

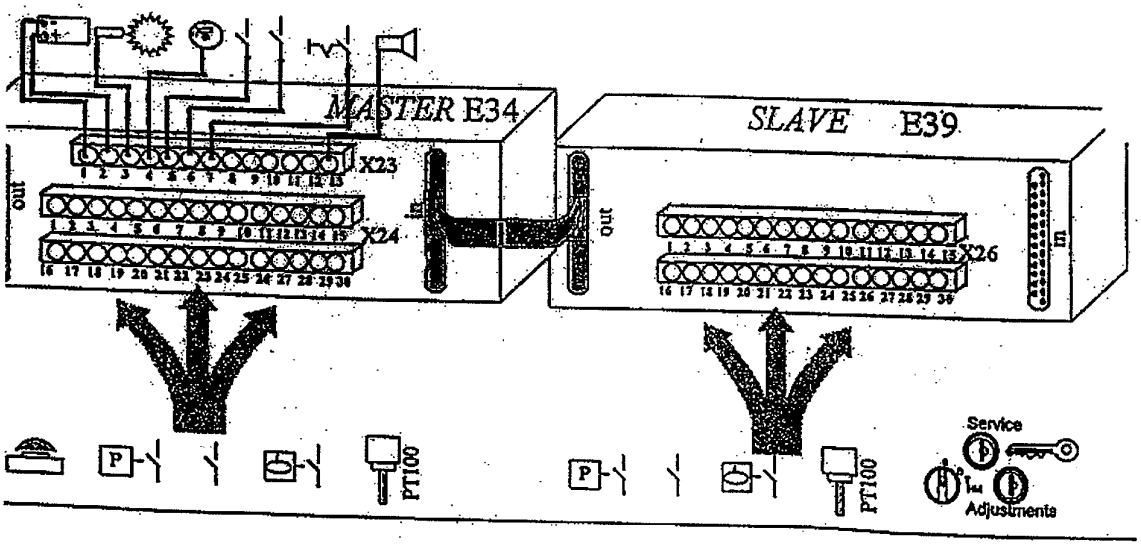
Ident-Nr.: 927 595 40

Format A3

Blatt/Blätter 38/ .

Z 22382		KOMATSU MINING GERMANY





- **The steps for operating the ETM keyboard are indicated by the key symbols.**

Call up the Basic Display from any message

If a fault condition occurs (e.g. message 21) it may be necessary to call up the basic display for the current operating hours or engine speed.

Example: Message 21

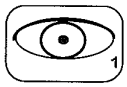
Central lubrication system:

empty grease barrel

The grease consumption can be determined, when the operating hours at the time of the last refilling or replacement of the grease barrel have been recorded.

Page 21 displayed.

Press, until **Page 0** appears.



Press to display **message 0** (basic display).

On the screen appears the basic display, e.g.:

15.02.95 14 : 36 : 30 h: 1351:20

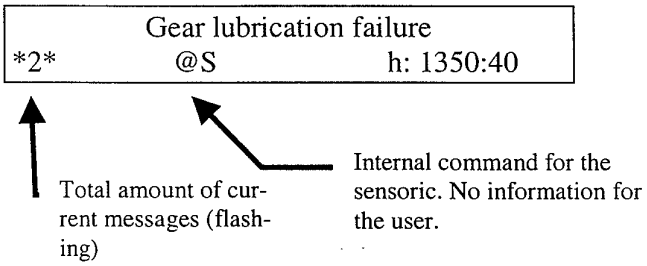
1/min: 1800

Message 0 will only be displayed for a few seconds, then the display returns to the current information.

SEVERAL MESSAGE CONDITIONS OCCUR AT THE SAME TIME.

The last message received will be displayed with regard to the priority (importance) of the condition, see grouping of messages according to their importance on page 28. The displayed message can be switched-over (English/German). All other current messages are kept in the background.

Example:



The current messages kept in the background are indicated by a flashing number on the screen. They can be called up with key 1 (MESSAGE). Press key 2 (UP) or 3 (DOWN) to view current messages.

Example:

Return oil filter restricted h: 1350:40

Engine air cleaner restricted h: 1350:20

To change the language of the called up messages, it is necessary to return to the operating text store by pressing key 4 (PAGE NO).
By pressing keys 2 and 3 all text lines of the message pages can now be selected.

TABLE OF MESSAGES

Message Pages Number 12 to 18.

Page No.:

12: $h: Low idle speed: High pressure filter #2 restricted
Niedriger Leerlauf: Hochdruckfilter 2 verschmutzt

13: $h: Low idle speed: High pressure filter #3 restricted
Niedriger Leerlauf: Hochdruckfilter 3 verschmutzt

14: $h: Hydraulic oil level too low!
Stop the engine!
Hydraulikoelstand zu niedrig!
Motor abstellen!

15: # Caution, slew gear house brake ON
Achtung, Drehwerkbremse geschlossen

16: # Caution, travel gear house brake ON
Achtung, Fahrwerkbremse geschlossen

17: # No clearance for starting:
p shift engine to low idle
Keine Startfreigabe: Motor auf
niedrigen Leerlauf schalten

18: $h: Central lubrication system fault
Zentralschmieranlage gestoert