Machine Datas for:	HYDR. 4-ROLLER PLATE BENDING MACHINE VRM-hy 12' x 1½"	CHR. HAEUSLER DORNACH/SWITZERLAND RHEINFELDEN/GERMANY
Customer:	ACF Industries Milton, Pennsylvania /USA	WO...10'554.....
Agent: Gould u.Eberhardt, Webster/Mass. USA		Year of construction ..1978...

Technical machine data:

Construction: horizontal / ~~vertical~~
Arrangement of rollers: sym./~~asym~~
No. of rolls:.....4.....
No. of adjustable rolls:.....3.....
No. of driven rolls:.....2.....
Roll diameter:
T.R. 595mm ..L.R...595mm..S.R. 480 mm.....
Operating speed.....4...m/min.
Tilting of radial bearing:.....
Tilting of tipping bearing:..hydr.....
Tilting of upper roll:.....hydr.....
Control of rotating direction:el.-hydr.....
Control of lifting movement:el.-hydr.....

Spare Parts and Accessories

..12 Fork wrench	12 Allan wrench
..1 Grease pump	.4. Bulbs
... Breakage pins	... Tapered Pins
... Socket wrench	... tool wrench
..1 Key control panel no.....	
..1 Key volume governor valve no	HDT. SY. 48.

Bending Tools

... Set of universal tools
... Set(s) for bending pipes
... Set of tools for bending U and I beams
... Set(s) for the forming of sections
..1 Set of semi-tubes bending rollers
... Set of flanging rollers

Additional attachments

1. Cone Bending Attachment Gr. 4
4. Opt. Indicator with transmitter=40W.12V
... Roller overloading protection
... Calibrating device
... Feed-in device
... Traction device for Channels and I-Beams
... Interchangeable roll Ø.....Ø.....
... Oil mist spray unit.....Type:.....
2. Brake ~~BKK~~ / BR2 / ~~BKK~~ on hydro-motor
1. upper supporting device
... lateral supporting device
... Control panel: movable / on column
... Sliding clutch: mech. / pneum. / pressure
1 pneum. maintenance unit intensifier 850 P
1 infeed car

Overall Mach. Dimens.: Width:.3480mm Length:.7300mm.Height:.3205mm Weight approx:83600 kg

Voltage:....440....V Current:..~60.....Hz Control voltage.110V Total Power ..131.kW..... ~~HP~~

Motor for:.....	No.	HP	kW	Type	Manufacturer	Rev./min.
hydr. aggregate	1		110	KN528oS-QB055	Schorch	1770
dto	1		18,5	KA 318oM-QB055	Schorch	1760
greasing pump	1		0,25	DPIN 71 L-6	FFD-Wien	880
infeed car	1		2,2	CB3-looL/4D	Bockwoldt	50.4

Cylinder

No.	Type	Manufacturer
2	ø 340 x 165 stroke	Häusler
4	ø 25o x 57o "	"
1	ø 8o x 53o "	Weinmann
1	ø 125 x 5o "	"

Valves

No.	Type	Manufacturer
1	H-4WEH16H3o/6AW115-6o NZ4	Rexroth
1	4WE1oC4.o/W115-6oN	"
4	H-4WEH16J3o/6AW115-6o NZ4	"
3	H-4WEH16C3o/6AW115-6o NZ4	"
1	4WEH32G3o/8LW-6o N	"
1	4WE 1oJ4.o/W115-6o N	"

Auxiliary installation pneum. / hydr.
Supplier:..Festo..... Working pressure:...6..atü
Supplier:..Rexroth..... Working pressure:.400..atü

Lubrication:....centralized.....
Type: .....1/15-M7 "Helios".....

Belts: flat / trapezoid

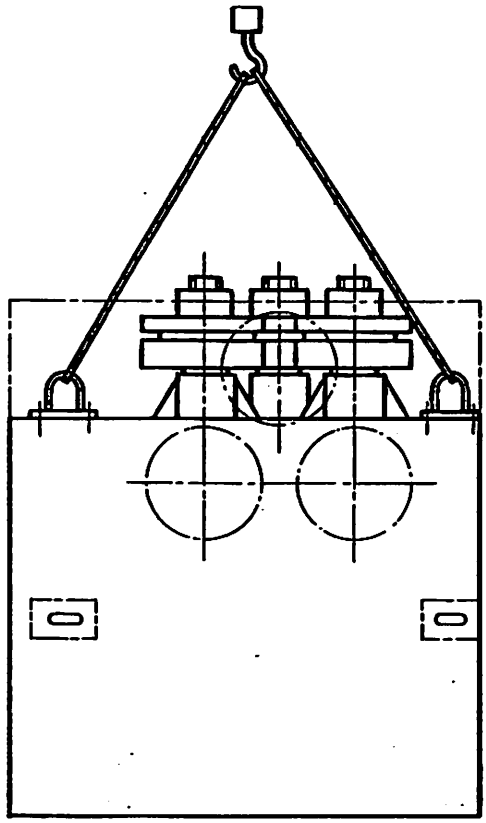
Clutches / Pumpes / Hydraulic Motor

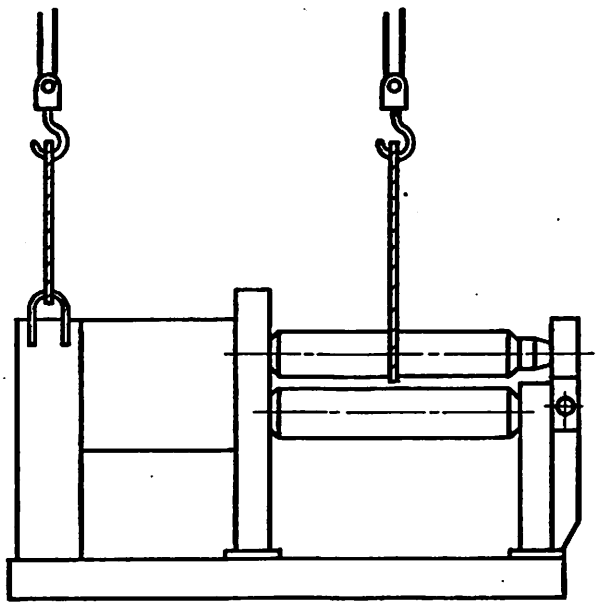
1	M 2o1 BH-66	Rollstar
1	M 2o1 BH-156	"
1	RMF-1oo	Oliostip
1	4-H1-25+4-H3-25	dextrorotatory
1	CB 4212 dextrorot.	Truninger HPI

Color: ...no..4/RAL.6o17/green.....

Remarks:
2 oil cooler T8-o4,42-2, Z.Nr.K 67o-117,o
2 therm. watervalve 3N2162+3Noo5o II
3 manometer o-4oo bar, no. 1127
1 dto o-16o bar, no. 1125
1 dto o-25o bar, no. 1126

BETRIEBSANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL





Chr. Häusler DORNACH RHEINFELDEN	Transport der Maschine Transport de la machine Transport of the machine	WO NO - 01 PE APRIL 74

Betriebsanleitung
Instruction de service
Instruction manual

Kontrolle - Contrôle - Checking

Die Maschine ist gleich nach der Ankunft auf eventuelle während des Transportes entstandene Schäden zu untersuchen.
Eventuelle Beanstandungen sind der Lieferfirma sofort zu melden.

Veuillez inspecter la machine après réception pour constater si le transport n'a pas causé des dégâts.
Des réclamations eventuelles sont à adresser au fabricant immédiatement.

Check the machine upon arrival for any damages which may have occurred during the transport.
Any complaints must be addressed to the manufacturer immediately.

Reinigung - Nettoyage - Cleaning

Die Maschine muss gründlich gereinigt werden. Alle mit Rostschutz oder Fett bestrichenen Teile sind mit Petrol oder Nitroverdünner abzureiben. Alle auf diese Art gereinigten Teile sind nachher wieder mit einem leichten Oelfilm zu versehen.

La machine est à nettoyer soigneusement. Les parties couvertes d'anti-rouille ou de graisse sont à nettoyer avec du pétrole ou un diluant. Ces parties sont ensuite à couvrir d'une légère couche d'huile.

The machine must be cleaned thoroughly. All parts covered with a rustproof coating or grease must be cleaned with petrol or a solvent.
Afterwards, the parts which have been cleaned in this manner must be covered with a slight oil coating.

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

1. Der Zusammenbau von den aus Transportgründen zerlegten Maschinen soll durch unsere Monteure oder nur nach ausführlichen Montageinstruktionen erfolgen.

   L'assemblage des machines qui par raison de transport arrivent démontées doit être fait par nos monteurs ou d'après des instructions de montage détaillées.

   The machine has been dismantled for transport reasons. The reassembly has to be done by one of our fitters or else by adhering strictly to the given instructions.

2. Die Maschine wird auf das vorbereitete Fundament gestellt. Maschine mit Klapplager so ausrichten, dass das Klapplager beim Oeffnen und Schliessen gut in die Führungsbüchse von Oberwalze zu liegen kommt.

   La machine est posée sur le fondement préparé. La machine doit être alignée de manière qu'en ouvrant et fermant le palier culbutable, celui-ci entre facilement dans la douille du guidage du rouleau supérieur.

   The machine is put onto the prepared foundation and must be aligned. When opening and closing the tipping bearing, the bushing must fit easily into the guide sleeve of the top roller.

3. Achtung: Maschine nicht verankern und untergiessen bis einer unserer Monteure die verschiedenen Funktionen kontrolliert hat.

   Attention: Bétonnage et ancrage seulement après contrôle de toutes les fonctions par notre monteur.

   Caution: Do not fasten the machine in the concrete until one of our fitters has controlled the various functionings of the machine.

4. Wird die Maschine teilweise in den Boden versenkt, so ist eine zweckmässige Abdeckung anzufertigen. Für die Abdeckung am besten Riffelbleche verwenden. Die Abdeckung muss leicht wegnehmbar sein. Träger nicht mit der Maschine oder Ständer verschweissen.

   Si la machine est enfoncée partiellement dans le sol, il faut monter une plaque de recouvrement, de préférence en tôle striée. Il est nécessaire que cette plaque peut être ôtée facilement. Ne soudez donc pas les poutres avec la machine ou les supports.

   If the machine is placed partly under floor, an adequate covering is to be made. We advise the use of chequered plate. The covering must be constructed in such a manner that it can be removed easily whenever necessary. Do not weld the support to the machine or the columns.

NO - 03	WO		P.E. NOV. 71

Chr. Häusler DORNACH HERTEN	Montage Montage Setting up of machine

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

Caution: **Non-observation of these points may result in heavy demages to the machine.**

1. **Check the oil level of the gear, hydraulic aggregates and motors. The checking is effected by measuring rod, checking of markings, or by inspecting the oil level glass. All these are marked with minimum and maximum.**

2. **If there is a central lubrication pump, check to see if the grease pot is filled. Check if the gears, sliding surfaces, spindles, chains, lubrication nipples, etc., are greased.**

3. **On chart E 3 we have listed the advisable qualities and brands of oil and grease to be used.**

4. **Only use new, clean oil and grease.**

5. **Check if the air supply (if existing) is connected. The required operating pressure is 6 - 8 atü = 85 - 110 psi. Check if a waterseparator is fixed to the connection, as otherwise rust can develop on the machine.**

6. **The electrical connection to the factory network must be done by the works electrician. The rotation direction of all motors and pumps is to be checked carefully. (See rotation direction arrows) Check is all stroke limitation limit switches are operational and set correctly.**

7. **The cone bending support must only be mounted onto the machine when bending cones. When there is no use for this attachment or when bending cylinders, it must be removed.**

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

SETTING IN OPERATION OF VRM

1. Switch on main switch and key switch.
2. Switch on main motor and hydraulic motor.
3. Switch the required functions by pressing the corresponding pushbuttons on the control panel.
4. The speed of the hydraulic system can be regulated by the push-button on the control panel (slow - fast)
5. Regulate the required operating pressure for the bottom roller by pressure reduction valve. The operating pressure depends on the plate thickness. (See capacity chart)
6. Adjust sliding clutch of the top roller. (See instruction sheet)
7. To incline the rollers, press the corresponding pushbutton and move the roller down. As soon as the required angle is reached, release the pushbutton and move the inclined rollers into required position. In order to adjust the rollers back to parallel, align them against the top roller. Corrections of the roller parallelism can be effected by pressing the corresponding pushbutton.

NO - 07 E	WO		P.E. FEB. 72

Chr. Häusler DORNACH HERTEN	INBETRIEBNAHME VRM MISE EN ROUTE DE LA MACHINE TYPE VRM SETTING IN OPERATION OF VRM

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
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BENDING INSTRUCTIONS (See bending schema No. 09)

Place the plate between top and bottom roller and clamp it slightly. To align the plate, drive it against the outgoing roller "D" whereby the plate aligns itself. (See Nr. 1, Schema NO-09)
Now build up pressure on the bottom roller "B". (See capacity chart)
Now return plate to the centreline between top and bottom roller. The ingoing roller "C" is then adjusted according to the required bending diameter and a short length is pre-bent. The bending result is controlled and the bending roller adjusted accordingly or left in position. The bending process is now continued to fully pre-bend the one side (see Nr. 2), and is afterwards interrupted to change the roller position. The ingoing roller "C" is moved down and the outgoing roller "D" is adjusted against the pre-bent plate. (see Nr. 3)
The plate is now bent further. It might be necessary to adjust the outgoing roller slightly higher if the outgoing end of the plate should not be bent to the required radius. If more than one pass is required to bend a cylinder, always adjust the ingoing roller for the pre-bending and the outgoing roller for the final bending accordingly.

REMOVING OF THE BENT CYLINDER

1. Slightly lower ingoing and outgoing roller
2. Lower bottom roller slightly until the top roller is free
3. Open tipping bearing
4. Lift off cylinder with the crane and remove it from between the rollers

BENDING OF LONG AND THIN PLATES

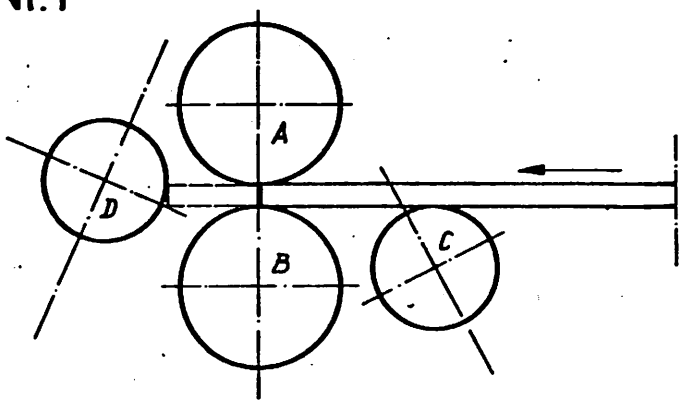
When bending long and thin plates, the material has to be held by a supporting device or by crane. The own weight of the workpiece could cause a deformation of the bending radius.

NO - 08 E	WO		P.E. NOV.71

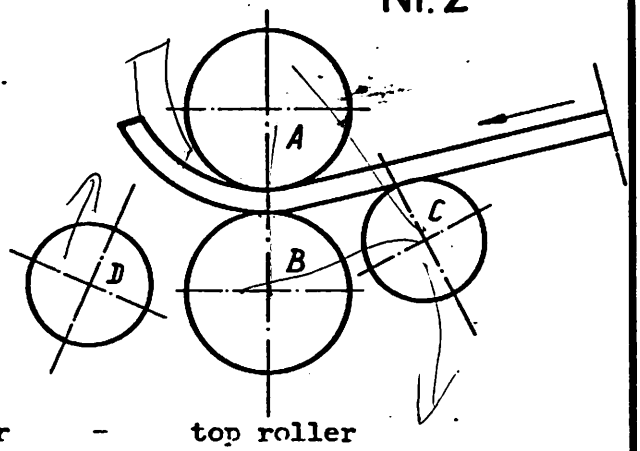
Chr. Häusler DORNACH HERTEN	BIEGE ANLEITUNG INSTRUCTION DU PROCEDE DE CINTRAGE BENDING INSTRUCTIONS

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

Nr.1



Nr.2



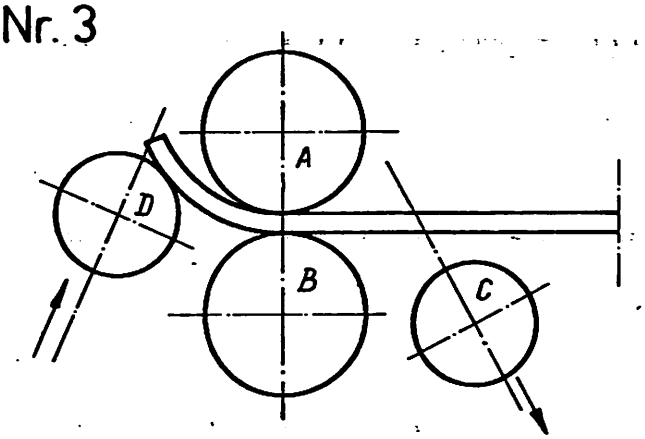
A = Oberwalze	-	rouleau supérieur	-	top roller
B = Unterwalze	-	rouleau inférieur	-	bottom roller
C = Einlaufwalze	-	rouleau d'entrée	-	entry roller
D = Auslaufwalze	-	rouleau de sortie	-	outgoing roller

1) Blech einlegen, an Walze D ausrichten und wieder zurückfahren bis Mitte Walze A+B.
2) Anbiegen mit Walze C nach Radiuslehre
3) Walze C nach unten fahren und Walze D an den gebogenen Radius anstellen.
4) Fertigbiegen, bis Zylinder geschlossen ist.

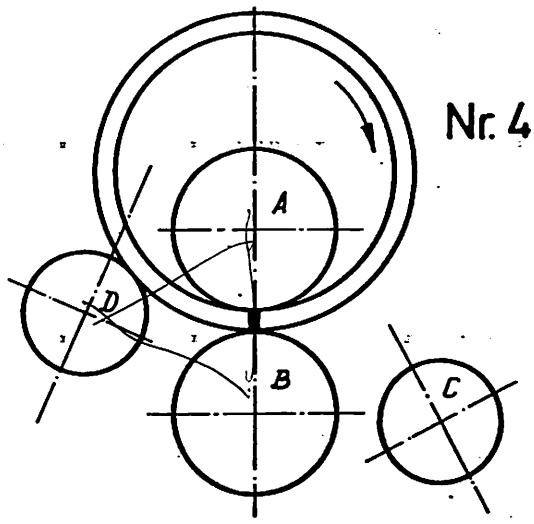
1) Introduire la tôle, aligner au rouleau D et retourner jusqu'au milieu des rouleaux A et B.
2) Croquer avec rouleau C selon gabarit.
3) Descendre avec rouleau C et ajuster le rouleau D au rayon cintré.
4) Cintrer jusqu'à ce que le cylindre soit fermé.

1) Feed in plate, align on roller D and move back to centerline of rollers A+B.
2) Prebend with roller C according to radius terplet.
3) Lower roller C and adjust roller D onto bent radius.
4) Finish bend until cylinder is closed.

Nr.3



Nr.4

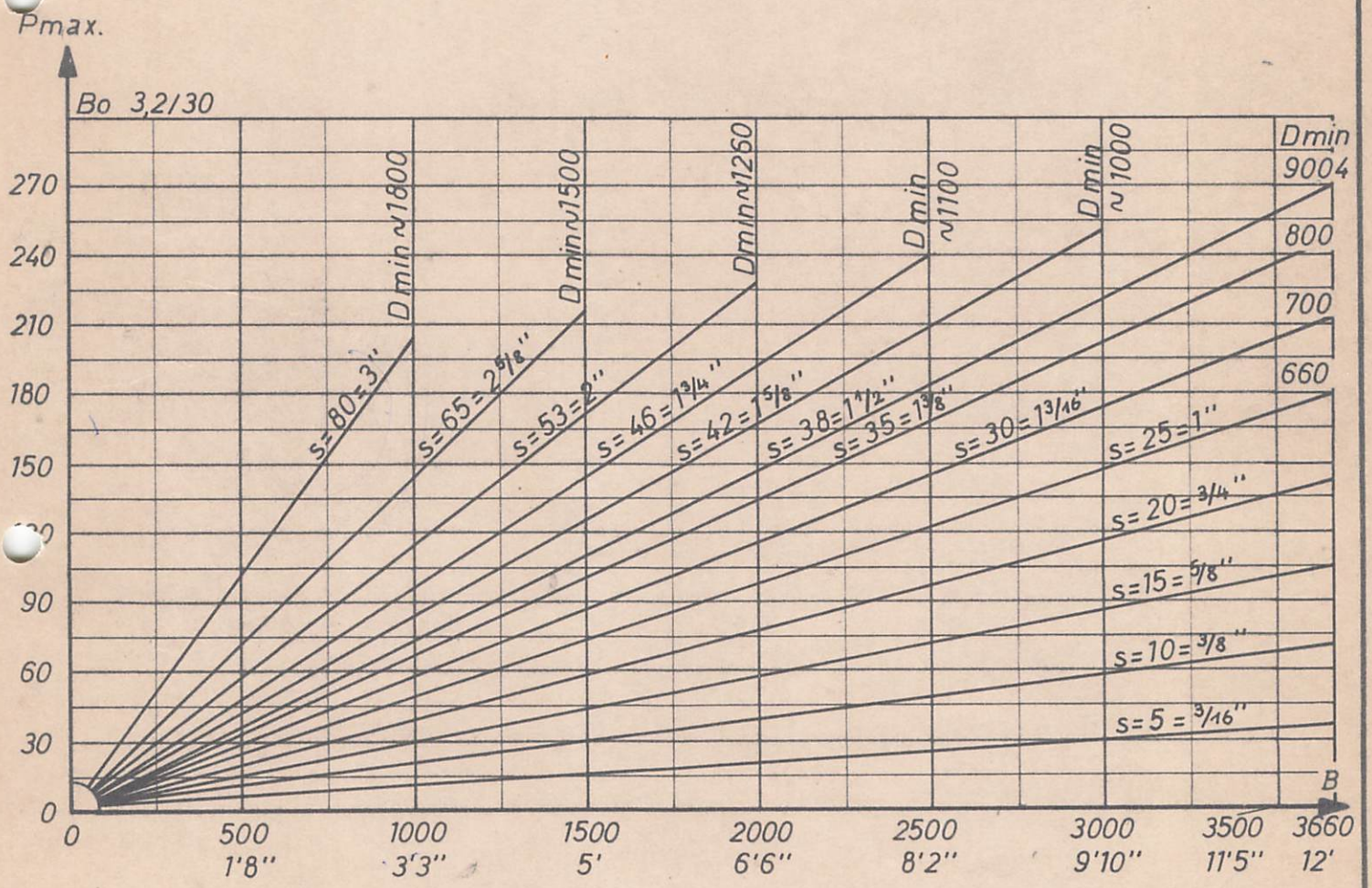


NO - 09	WO		P.E. DEZ. 73

Chr. Häusler DORNACH HERTEN	Biege Schema Schema de cintrage Bending diagram

Capacity chart VRM hy 3,66/38 ROLL ϕ 595

S = Plate thickness in mm Mat. $\sigma_{S\,max.}$ = 32 kp/mm²
B = Plate width in mm
X = Flat end 2,4 x S
Pmax = max. permissible oil pressure for lower roll in atü (1atü = 14,2 psi)
for conebending use only 35% of as indicated pressure as per cap. chart



CHR. HAEUSLER, DORNACH Switzerland	WO 10554

Chr. Häusler
Dornach/Schweiz
Rheinfelden (BRD)

Lubrication Chart

E 3

VRM-hy 12' x 1½" WO 10554

	*	Point of lubrication	Interval of lubrication	Method	Lubricant
1		Reduction gear unit, Reduction-distribution gear unit, Adjusting gear units equipped with multiplate disk clutches	Fill up carter to the middle of the marked level. First oil change after 3 months. Further oil changes yearly. Clean oil filter weekly	Filling approx. ..... ltr.	G ..... H tropical climate
2		Adjusting gear unit (s) (Motor gear unit[s] only)	Fill up carter to the middle of the marked level. First oil change after 3 months. Further oil changes yearly	Filling approx. ..... ltr.	C
3	X	Points fitted with grease nipples	Red collars: Daily or every 10 W.hrs. Yellow collars: Weekly or every 50 W.hrs. Blue collars: Twice a year	Hand, Grease gun	E
4	X	Sliding faces, threaded shafts and worm gears Racks of the synchronism	As required. Check once a week. For lubrication open the corresponding access doors or machine coverings	Hand, Brush	E
5		Open turning gears	As required. Check once a week. For lubrication open the corresponding access doors or machine coverings	Hand, Brush	F
6		Oiling points of the guiding roller system, shifting levers etc.	As required, in any case lubricate weekly	Hand, Oil can	G
7	X	Compressed air filter and oilmist lubricator unit	Check oil level weekly Purge condensed water weekly	Filling approx. 0,25 ltr.	G
8		Chain and gear cases	Fill up to the middle of the marked level. Check oil level weekly	Filling approx. ..... ltr.	C
9	X	Hydraulic installation	Fill up to the middle of the marked level. Check oil weekly. Oil change: once a year. Clean filter weekly	Filling approx. 2000 ltr.	A ..... B tropical climate
10		Manual operated oil pump, partly centralized	Pump I for main bearings: operate daily Pump II for bearings required less lubrication: operate weekly Check oil level weekly	Central lubrication (oil)	D
11		Manual operated grease gun, partly centralized	Pump I for main bearings: operate daily Pump II for bearings required less lubrication: operate weekly Check grease level weekly	Central lubrication (grease)	E
12	X	Motorized grease pump Pneumatic grease pump	Automatic on and off switching with rotation Switches on and off automatically over time relay Re-fill grease container weekly	Central lubrication (grease) 10 kg	E
13		Worm gears with splash lubrication Spur gear with imnersion lubrication	Check oil levels of gear cases and expansion vessel weekly	Filling approx. ..... ltr.	C

A = Hydraulic oil
H-LP 36 (36 ± 4 cSt / 50 °)
BP Energol HLP 100 / BP Energol SHF 100
ESSO: NUTO H 54
Gulf Harmony 54 AW
Mobil D.T.E. 26

B = Hydraulic oil
H-LP 68 (68 ± 6 cSt / 50 °C)
BP Energol HLP 150 / BP Energol SHF 150
ESSO: NUTO H 64
Gulf Harmony 71 AW
Mobil D.T.E. 28

C = Extreme-pressure gear oil
C-LP 225 oder C-LP 324 (225 ± 25 cSt oder 324 ± 35 cSt / 50 °C)
BP Energol GR 550-XP / BP Energol GR 700-XP
ESSO: SPARTAN EP 460 / SPARTAN EP 680
Gulf E.P. Lubricant 145
Mobilgear 634 or Mobilube GX 140 / Mobilgear 636

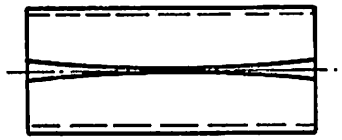
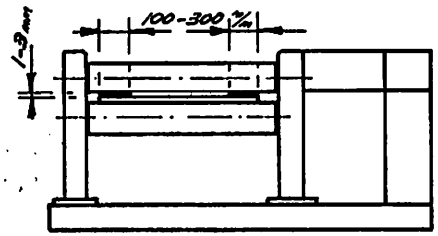
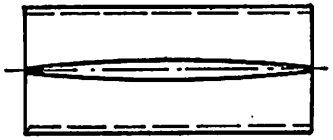
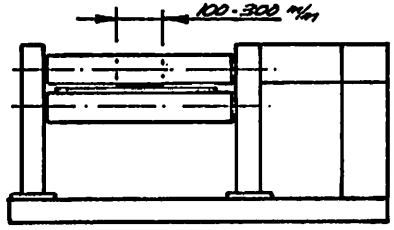
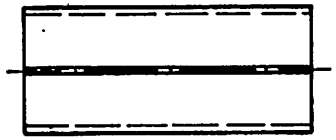
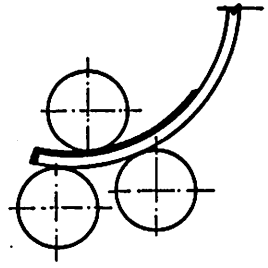
D = Extreme-pressure gear oil
C-LP 92 (92 ± 7 cSt / 50 °C)
BP Energol GR 280-XP
ESSO: SPARTAN EP 150 / SPARTAN EP 220
Gulf E.P. Lubricant S-88
Mobilgear 630 / Mobilube GX 90

E = Extreme-pressure lithium based grease NLGI 2
BP Energrease LS-EP 2
ESSO: BEACON EP 2
Gulfcrown Grease E.P. 2
Mobilux EP 2

F = Lubricant for open gears
BP Energol WRL / BP Energol GR 3000-2
ESSO: SURETT FLUID 30
Gulf Fluid Lubcote 3
Mobiltac E or Mobiltac D, Mobiltac 81

G = Extreme-pressure gear oil
C-LP 36 (36 ± 4 cSt / 50 °C)
BP Energol GR 100-XP
ESSO: SPARTAN EP 68
Gulf E.P. Lubricant S-53
Mobilgear 626 / Mobil Compound AA

H = Extreme-pressure gear oil
C-LP 68 (68 ± 6 cSt / 50 °C)
BP Energol GR 190-XP
ESSO: SPARTAN EP 100
Gulf E.P. Lubricant S-71
Mobilgear 629 / Mobilube GX 80

Zylinder/Cylinder	Ursache/Cause	Behebung/Correction	
I. 	Zu schwaches Blech oder zu starke Bombierung der Walzen La tôle est trop faible ou le bombé des rouleaux est trop grand The plate is too weak or the rollers are too much corrected		Zwei Streifen an den beiden Enden einlegen und mit dem Blech zusammen nachbiegen Les deux bandes sont à mettre sur les extrémités de la tôle et les pièces sont à repasser ensemble Set two strips at the two ends of the plate and bend all parts together
II. 	Zu starkes Blech oder zu schwache Bombierung der Walzen oder zu kleiner Walzendurchmesser La tôle est trop forte ou le bombé des rouleaux est trop grand ou le diamètre des rouleaux est trop petit The plate is too strong or the rollers are insufficiently corrected or the diameter of the rollers is too small		Ein Streifen in der Mitte einlegen und mit dem Blech zusammen nachbiegen Une bande doit être mise au milieu de la tôle et les deux pièces sont à repasser ensemble Set one strip in the middle of the plate and bend both parts together
III. 	Bombierung und Blech stimmen überein, Zylinder einwandfrei Le bombé des rouleaux correspond avec l'épaisseur de la tôle, virole parfaite The correction of the rollers corresponds with the plate, cylinder o.k.		Streifenlänge ca. 500 mm Longueur des bandes env. 500 mm Length of the strips approx. 500 mm (20") 27/6/63 HZ/gz

Chr. Häusler
Dornach
Schweiz

Blechstoss-Abweichungen.
Variations sur les bords des viroles.
Variation of the edges of the cylinders.

O-217

Working Instruction

BENDING OF CONES (after drawing 0-297)

The forging scale has to be removed from the developped plate. Scaled-off plates facilitate the sliding between the rollers which results from the different diameters of the cone. Important is also that all sharp edges or corners are ground off to facilitate the bending process.

In order to check the accurate feeding of the developped plate, guide lines leading to the centre, should be traced here upon.

By bending cones you go ahead as follows:

Machines with hydraulic rollers adjustment:

1) Lower roller: press small push button and incline the lower roller about 2 - 4 mm. Release the button and go upwards with the roller till the plate is hold at one end.

2) Side rollers: press small push button and drive the roller into the desired inclination. Then release the button and adjust the roller to the necessary bending diameter.

If the approximate normal positions are reached, you can start with proper bending, whereby the plate can be let in from either side. It is important that the plate lies against the guiding support during the bending process and that the face of the plate sliding along the support is lubricated to reduce friction.

The pre-bent end is controlled by radius gauges. These gauges have to be made according to drawing 0-60. If no guides are provided on the gauge, checking mistakes are easily made. If the pre-bent end does not correspond with the gauge, then the positions of the side rollers have to be changed accordingly.

During bending process controls of bending diameter and insertion of the plate have to be made constantly.

If you see, that during insertion of the plate the guiding lines and the assumed bending lines do not agree, then the bending process must be interrupted and the plate must be put in the right position by hand. For this reason the two side rollers and the lower roller have to be lowered shortly. After the correction reput the rollers in their original position.

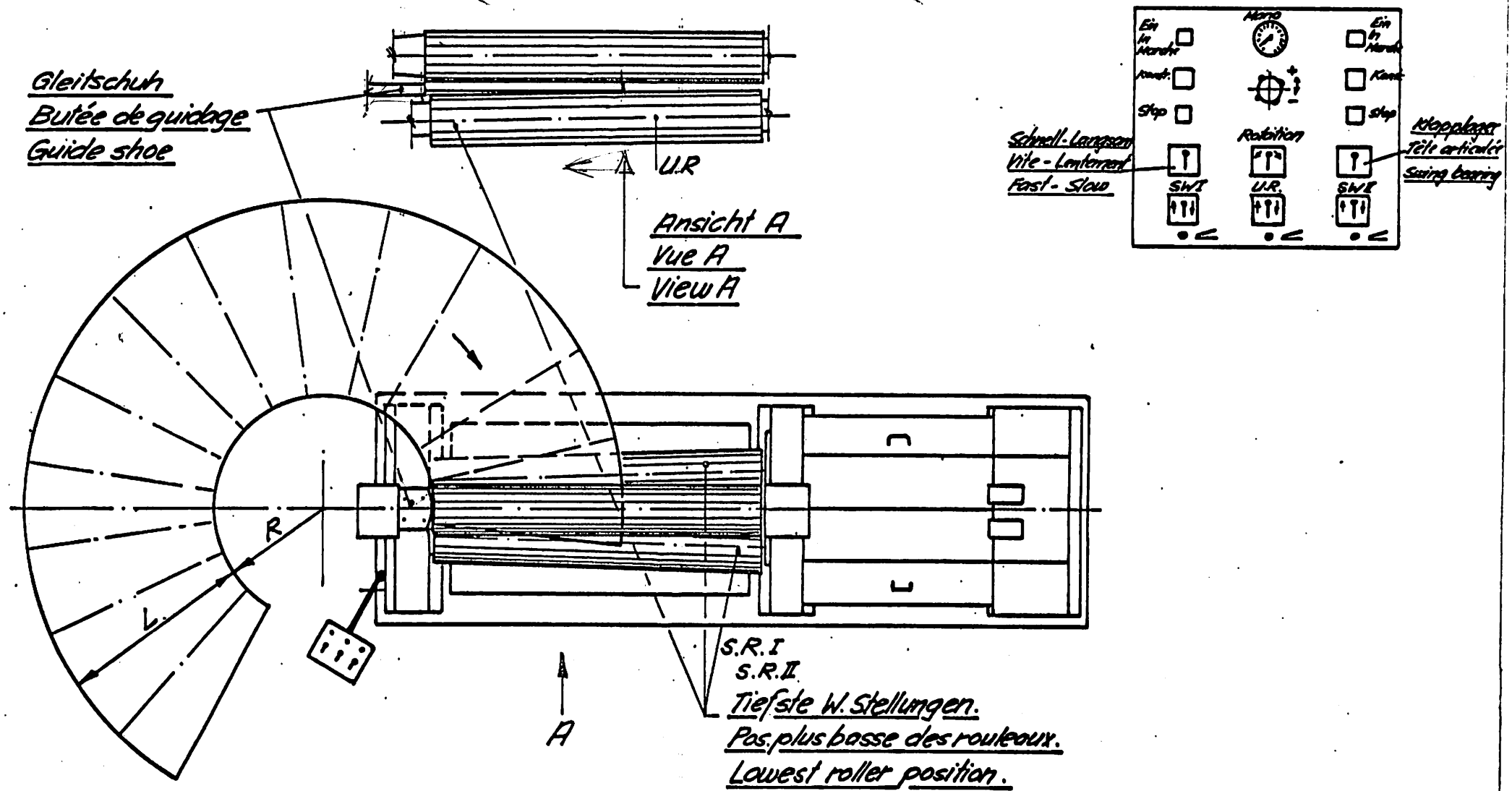
If the process is finished, note at first the found values. The inclinations of the rollers can be seen from the scales. Those values can be used for later works.

Now, the rollers are lowered and the cone removed.

For resetting of the rollers for cylindrical work proceed as follows: Lower or raise side rollers in their end positions and press push button for parallel setting. Control parallelism of the rolls with 2 plate strips of equal thickness in the top position.

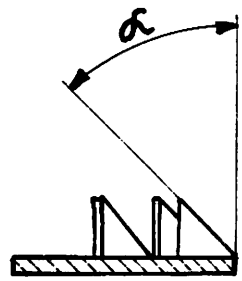
25.4.67 ZH/lk/

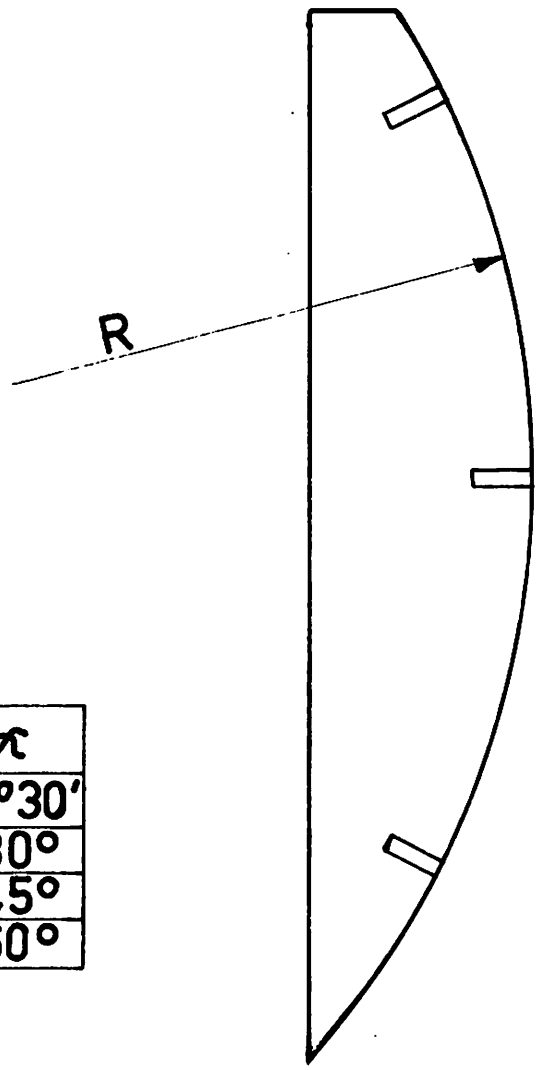
Chr. Häusler Dornach	Machine Type V R M	



Konusbiegen auf 4-Walzenmaschine Cintrage conique sur cintreuse à 4 rouleaux Cone bending on 4-roller machine.	5/11/65 A.R Chr. Häusler Dornach 0-297

WORKING INSTRUCTION





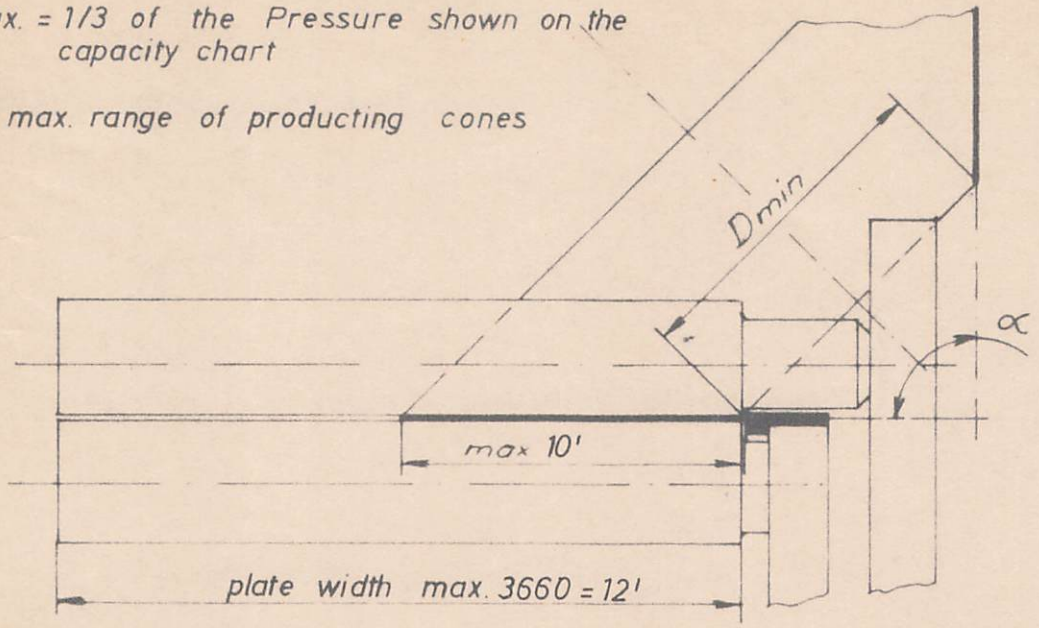
Cones	α
45°	22°30'
60°	30°
90°	45°
120°	60°

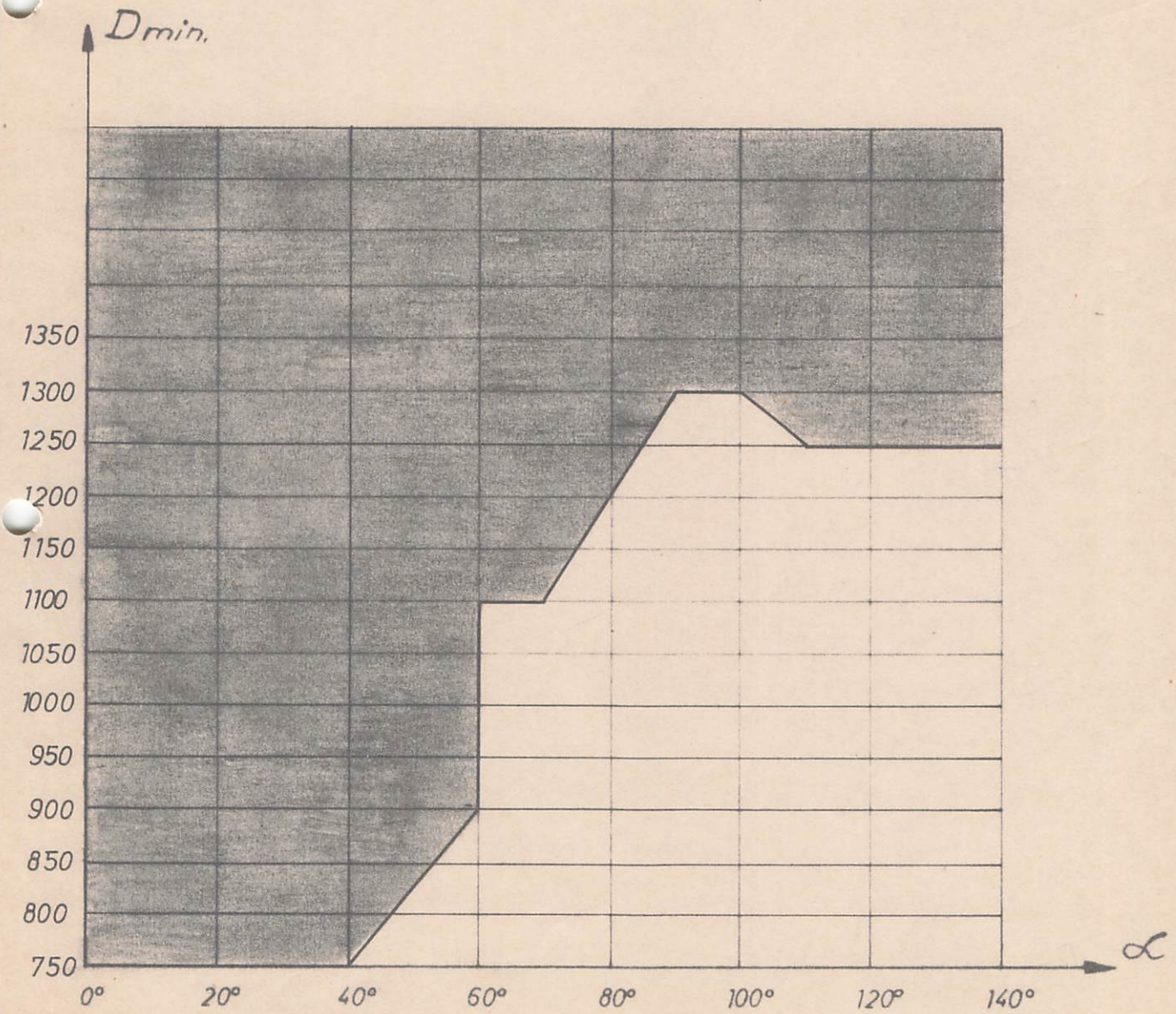
CHR.-HAEUSLER Dornach-Schweiz	Radius gauge	NO. 0-60

Cone-bending-chart VRM hy 3,66 / 38

Pmax. = 1/3 of the Pressure shown on the capacity chart

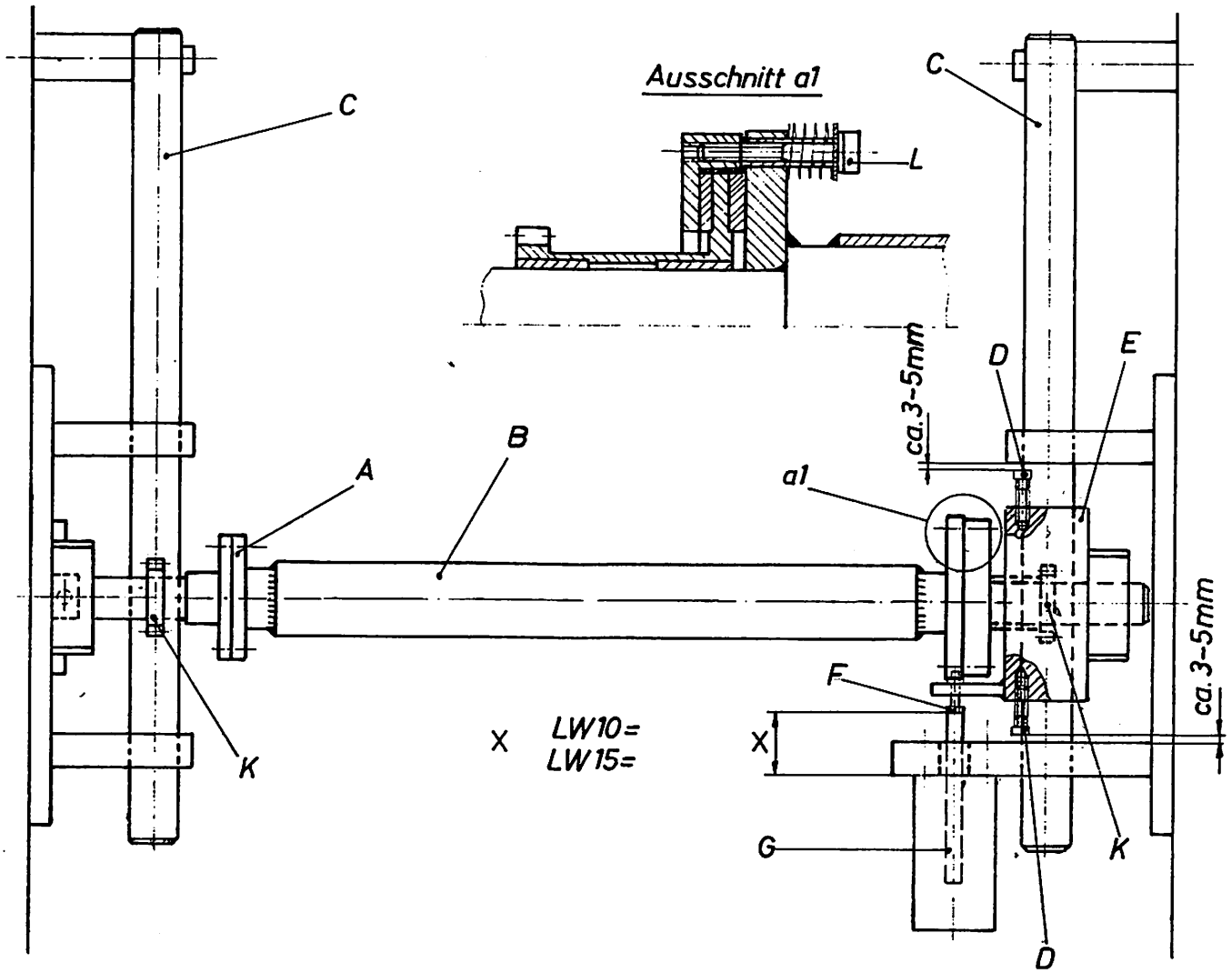
max. range of producting cones

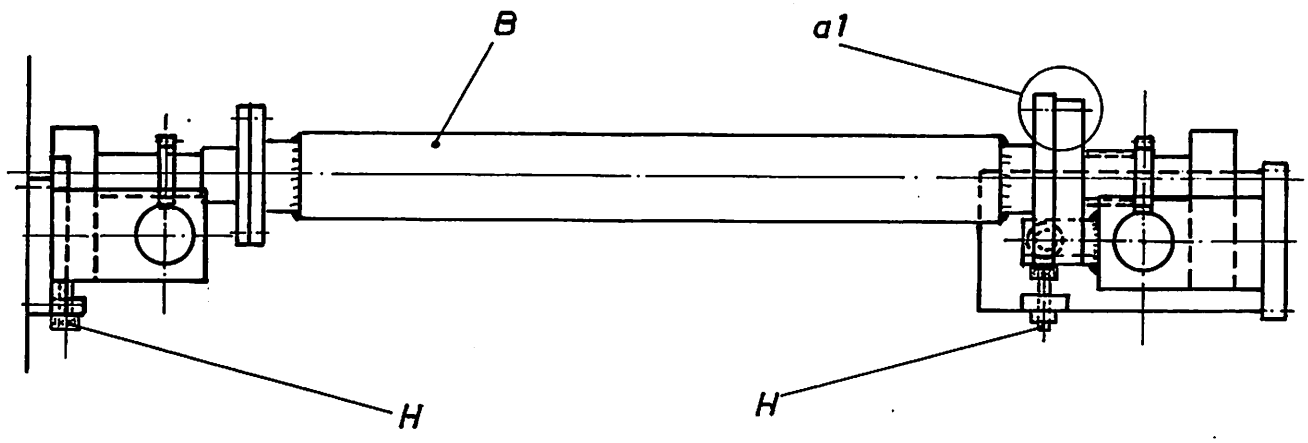




Chr. Häusler, Dornach SWITZERLAND | WO 10554

Betriebsanleitung
Instruction de service
Instruction manual





NO-05A	WO	Gültig ab Juli 71	P.E. Sept. 71

Chr. Häusler
DORNACH
HERTEN

Einregulieren des Gleichlaufes
Réglage du système de compensation
Adjustment of the compensating mechanism

Betriebsanleitung
Instruction de service
Instruction manual

A = Zwischenflansch zum Demontieren der Gleichlaufstange
Bride intermédiaire pour le démontage de la barre de synchronisation
Intermediate flange for the disassembling of the equalisation rod.

B = Gleichlaufstange - Barre de synchronisation - Equalisation rod

C = Zahnstangen (Wöchentlich schmieren)
Crémaillères (à graisser chaque semaine)
Racks (To be greased once a week)

D = Schrauben zum Lagerblock E auszumitteln.
Vis pour le centrage du palier "E".
Bolts to be centered to the bearing block E

E = Lagerblock - Palier - Bearing block

F = Schraube zum Gleichlauf einstellen. (Parallel stellen der Walze)
Vis pour le réglage du dispositif de synchronisation
(pour paralléliser les rouleaux)
Bolt for the adjustment of the equalisation system. (Parallel adjustment of the rollers)

G = Steuerkolben - Piston pilote - Steering-piston

H = Zahnspiel einstellen. Die Zahnräder K von Gleichlaufstange B dürfen nur minimales Spiel haben.
Ajuster le jeu. Les roues dentées K de la barre de synchronisation B n'ont qu'un jeu minime.
Adjustment of the gear play. The gears K of the equalisation system B may only have a minimal play.

K = Zahnräder (Wöchentlich schmieren)
Roues dentées (à graisser chaque semaine)
Gears (To be greased once a week)

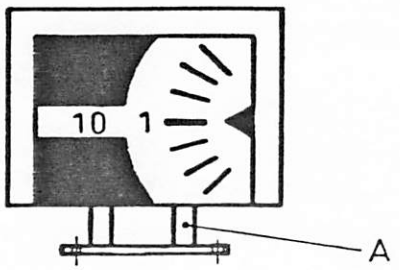
al= Rutschkupplung mit Lamellen. Die Schrauben L müssen angezogen sein. Der eingestellte Federdruck ermöglicht ein Schleifen der Kupplung. Die Kupplung spricht an beim Konisch- oder Parallelstellen der Walzen.
Accouplement à friction avec lamelles. Les vis L doivent être serrés. La pression de ressort permet le glissement de l'accouplement. L'accouplement réagit en mettant les rouleaux en position inclinée ou parallèle.
Multiple disk sliding clutch. The bolts L must be tight. The pre-set spring pressure enables the clutch to slide, if necessary. The clutch also works when inclining the rollers or moving them back into parallel position.

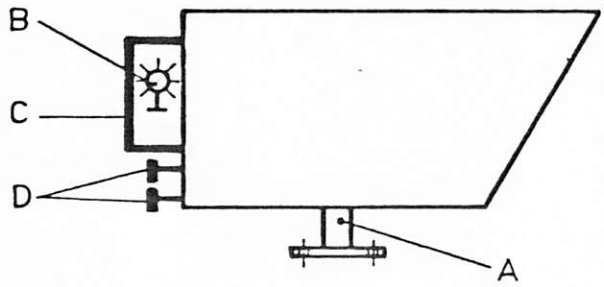
NO-05B	WO	Gültig ab Juli 71	P.E. Sept. 71

Chr. Häusler
DORNACH
HERTEN

Einregulieren des Gleichlaufes
Réglage du système de compensation
Adjustment of the compensating mechanism

Betriebsanleitung
Instruction de service
Instruction manual





1. Die optischen Uhren sind wartungsfrei. Die Skalawerte werden 10-fach vergrössert auf die Mattscheibe projiziert.

   Les indicateurs optiques ne nécéssitent pas d'entretien. Les valeurs sont projetées avec décuplement sur le verre dépoli.

   The optical indicating devices do not require any maintenance. The values of the scale are projected onto the illuminated optical screen.

2. Die Uhren ermöglichen die genaue Lage der Walzen oder Rollen. Somit können die gefundenen Einstellwerte auf einer Tabelle festgelegt werden. Diese Werte können später wieder für ähnliche Arbeiten als Richtwerte benützt werden.

   Les indicateurs permettent de fixer la position exacte des rouleaux ou galets. Les valeurs trouvées peuvent être notées sur un tableau. Ils servent comme valeur approximative pour des travaux semblables.

   The optical indicating devices enable the exact positionning of the rollers. The exact figures can thus be set up on a table and can be taken for similar work whenever required.

3. A = Befestigungssockel - Culot de fixation - Fastening socket

   B = Lampe. Ausgebrannte Lampen können durch entfernen des Deckels C ausgewechselt werden. Deckel C nur nach oben schieben. (Lampen Type Osram 12 Volt, 55 Watt.)

   Ampoule. Les ampoules défectueuses peuvent être remplacées. Pour enlever le couvercle C, pousse le vers le haut. (Employez ampoules Osram, 12 Volt, 55 Watt.)

   Bulb, Burnt-out bulbs can be replaced by removing the lid C. Slide lid C upwards. (Bulb type Osram 12 Volt, 55 Watt.)

   D = Feinsicherungen (2 Stück 5 x 20 mm)

   Fusible pour faible intensité (2 pièces 5 x 20 mm)

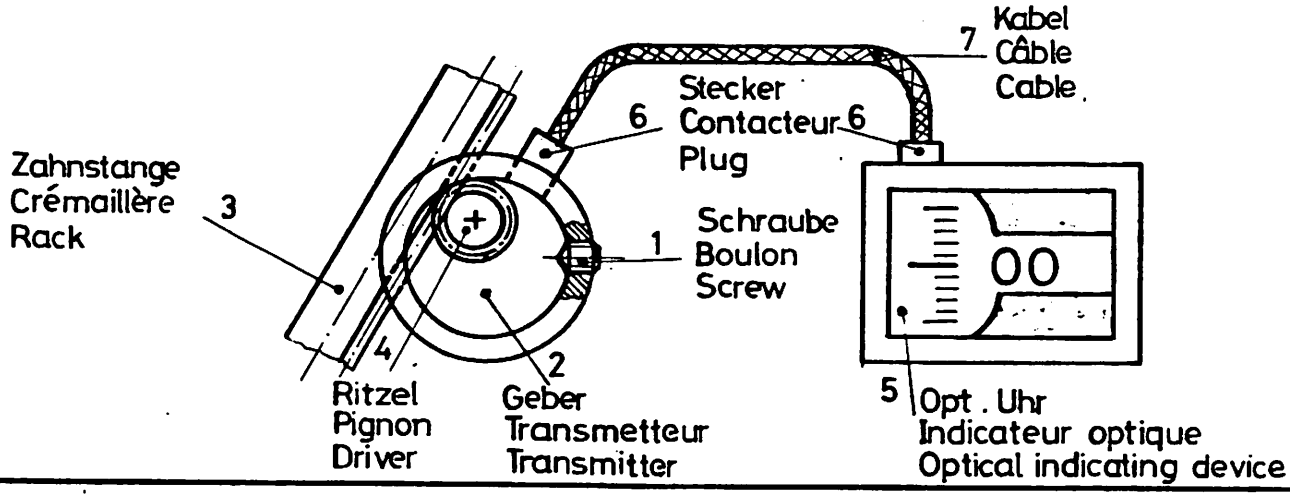
   Use fine-wire fuses (2 fuses 5 x 20 mm.)

NO-06	WO		P.E. NOV. 71

Chr. Häusler
Dornach / Schweiz
Herten / Baden
Maschinenfabrik

Optische Anzeige-Uhr
Indicateurs optiques
Optical indicating devices

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL



-Sollte aus irgend einem Grund (Reparatur/Stromausfall) die optische Uhr nicht mehr mit der "00"-Stellung übereinstimmen, kann die Uhr wie folgt eingestellt werden:
-Si à cause de n'importe quel raison (réparation/manque de courant) l'indicateur optique ne correspond plus à la position "00", il peut être ajusté comme suit:
-If because of any reason (repair/failure of current supply) the optical indicating device should no longer correspond with the "00"-position, then the optical indicating device can be adjusted as follows:

1.-Seitenwalze an die Oberwalze anstellen.
-Guidez le rouleau latéral au rouleau supérieur.
-Bring side roller to upper roller.

2.-Schraube 1 lösen und Geber 2 von der Zahnstange 3 weg drehen, bis Ritzel 4 frei ist.
-Desserrez le boulon 1 et détournez le transmetteur 2 de la crémaillère 3 jusqu'à ce que le pignon 4 soit libre.
-Loosen the screw 1 and turn the transmitter 2 away from the rack 3 till the driver 4 is free.

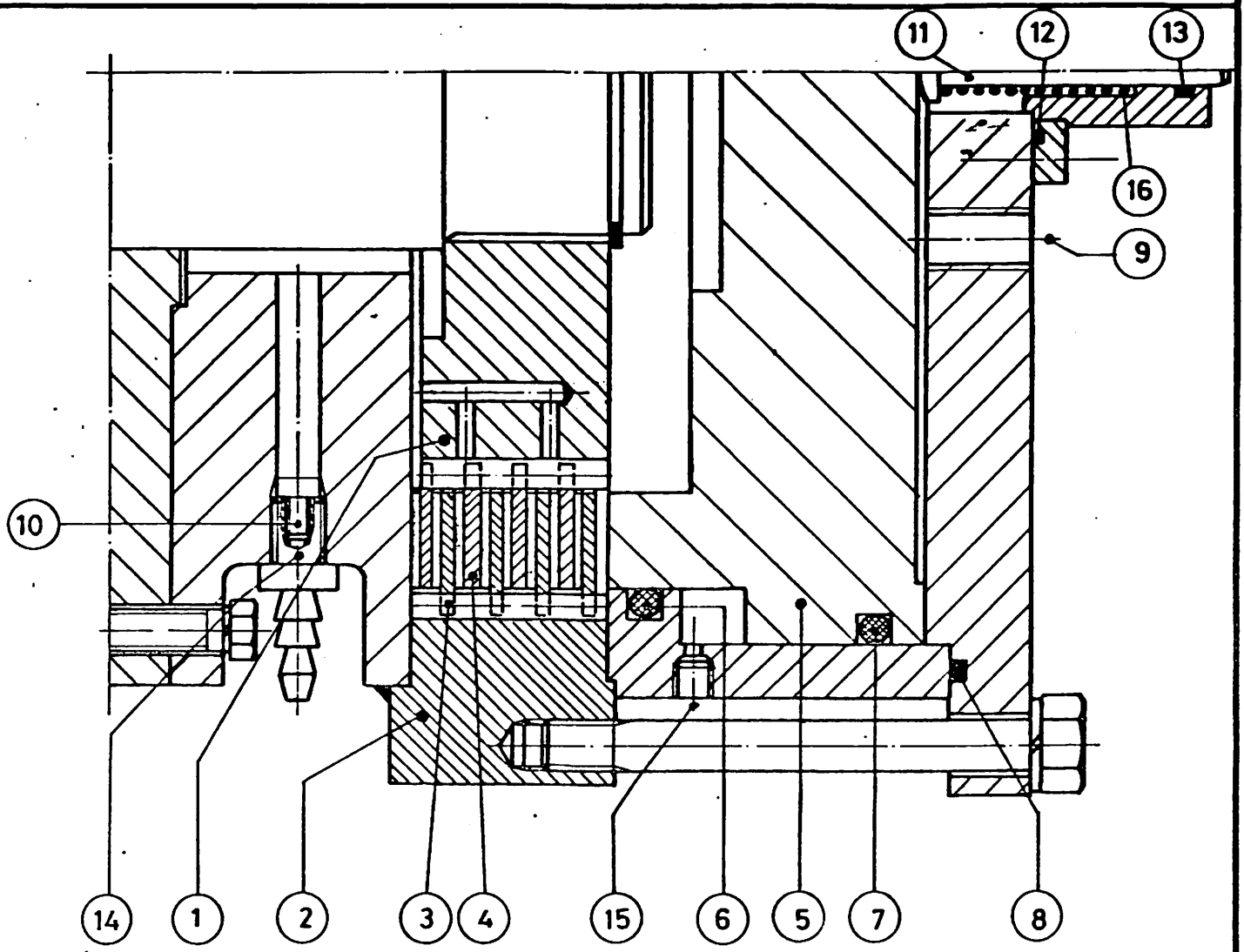
3.-Ritzel 4 von Hand drehen bis optische Uhr 5 wieder "00" anzeigt.
-Tournez à main le pignon 4 jusqu'à ce que l'indicateur optique montre de nouveau "00".
-Turn the driver 4 by hand till the optical indicating device 5 shows again "00".

4.-Geber 2 wieder in Richtung Zahnstange 3 drehen und Schraube 1 anziehen. Es ist darauf zu achten, dass das Ritzel 4 mit Zahnstange 3 minimales Spiel hat
-Tournez de nouveau le transmetteur en direction de la crémaillère 3 et serrez le boulon 1. Prenez garde que le jeu entre le pignon 4 et la crémaillère soit minimal.
-Turn again the transmitter 5 in direction of the rack 3 and tighten the screw 1. Take care of, that there is a minimum play between the driver 4 and the rack 3.

5.-Die optische Uhr wird immer für die Normal-Walze eingestellt.
-L'indicateur optique est toujours ajusté pour le rouleau normal.
-The optical indicating device is always adjusted for the normal roller.

NO 06 B	WO		P.E. Juni 78
Chr. Häusler DORNACH HERTEN	Einstellen der optischen Uhr Ajustage de l'indicateur Optique Adjustment of the Optical indicating Device		

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL



	1	Mitnehmerrad	disque entraineur	catch wheel
	2	Bremsgehäuse	cage du frein	brake housing
*	3	Aussenlamellen.	disques extérieurs	outer lamellas
*	4	Innenlamellen	disques intérieurs	inner lamellas
	5	Kolben	piston	piston
	6+7+8	"O" Ring	anneau "O"	"O" ring
	9+15	Luft Anschluss	connexion d'air	air connexion
	10	Düse	buse/gicleur	nozzle
	11	Kontrollstift	goupille de contrôle	control pin
	12+13	"O"-Ring	anneau "O"	"O" ring
	14	Kühlluft	air refroidissant	cooling air
	16	Feder	ressort	spring
*	3+4	Verschleissteil	pièce d'usure	working part

NO - 12 A	WO		P.E. Juni 75

Chr. Häusler
DORNACH
HERTEN

PNEUMATISCHE BREMSE
FREIN PNEUMATIQUE
PNEUMATIC BRAKE

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

BREAKDOWN	REASON	REMOVAL
1) Lower or lateral roller sink or do not keep the pressure	a) nonreturn-valves b) relief pressure valves c) cylinder head gaskets	a) control or evt. replace the nonreturn-valves. b) control or evt. replace the relief pressure valves. c) control or evt. replace the cylinder head gaskets. (Pay attention to hydr. diagram.)
2) The rollers run inclined (their going up and down is not parallel.)	a) sliding clutch of the compensation b) piston of the compensating valve.	a) control the sliding clutch al of the compensation. Evt. tighten a little the scres L. b) turn slightly in or out the piston G of the comsating valve with the screw F. (Look page NO-05A and NO-05B)
3) The rollers rattle while going up or down	clearance between rack and toothed wheel.	The clearance between rack and toothed wheel can be adjusted with the screw H. There should be only a min. clearance between the toothed wheel and the rack. (Look page NO-05A + NO-05B)
4) Optical indicator does not light anymore	a) the lamp is defect b) the fuse is defect c) the plug is loosened d) the cable is defect	a)replace it by a new one. b)replace it by a new one. c)put it in correctly. d)control the cable and replace it evt. (Look page NO-06)
5) Upper and lower roller do not work when the rotation is put in.	sliding clutch does not work	a) control if there is air. b) evt. fill up oil in the pressure transformer. c) control and evt. adjust higher the relief pressure valve on the control desk.

NO-21 E	WO		P.E.JULI 77

Chr. Häusler
DORNACH
HERTEN

BREAKDOWN	REASON	REMOVAL
		d) adjust the sliding clutch mechanically. e) Evt. replace the lamellas by new ones. (Look also instruction manual)
6) Upper and lower roller do not go with	a) clutch in the reduction gear	a) adjust the clutch for rotation in the reduction gear or replace the lamellas by new ones. b) check the limit switches of the brake on hydr. motor. c) check the pilot valves for rotation. (Look also instruction manual)
7) Machine does not brake anymore	a) air b) lamellas c) pilot valve	a) control if there is air b) evt. replace the lamellas by new ones. c) control if the pilot valve is operated correctly. (Look also instr.manual)
8) Water in the system	combined compr. air unit does not work	a) check the whole combined compr. air unit. b) let off the water in the sight glass. c) fill in oil in the sight glass. d) evt. replace the whole combined compr. air unit by a new one. (Look also instr. manual)
9) Machine runs by jerks during bending	sliding clutch(es) of upper and lower roller does (do) not work	a) loosen the sliding clutch a little. b) adjust the relief

Chr. Häusler
DORNACH
HERTEN

BREAKDOWN	REASON	REMOVAL
		pressure valve on control desk weaker. c) evt. let out oil on the pressure transformer. d) evt. replace lamellas by new ones. (Look instr. manual)
10) Hydr. installation does not have any pressure.	a) motors b) relief pressure valves c) pump d) oil level	a) control rotating direction of motors. b) control the relief pressure valves. c) remove the air from the pump. d) control oil level of hydr. agregat.
ATTENTION: Always consult the instruction manual for all these breakdown works.		

Chr. Häusler
DORNACH
HERTEN

List of Spare Parts

Mechanical parts

Customer: ACF Industries, Milton, Penn. WO 10'554 Page: 1

Representative: G.u.E., Webster/Mass. Type of Machine: VRM-hy 12' x 1¼"

No.	Pcs.	Nomination	Belonging to
1	2	bush ø 350/320 x 142	tilting bearing
2	2	dto ø 2oo/18o x 145	dto
3	2	ring ø 28o/18o x 1o	dto
4	2	plate 6o x 1o x 28o	dto
5	2	bush 5o3o m	dto
6	2	plate 62o x 22o x 5	bearing bloc (upper roller;lower roller)
7	2	dto 51o x 22o x 5	" "
8	2	self aligning roller bearing 24156 C-W 33	" "
9	1	dto 24164 CAB-W 33	" "
10	8	plate 5 x 17o x 96o	roller bearing with hydr. cyl.
11	2	bar joint 18o/2oo/15 Ni 3oo	lower roller cyl. comp. ø 34o x 165 stroke
12	2	stripper AUAS 18o/195/1o/14 249o6/71	dto
13	2	Glyd-ring Nr. 3400-42 OR-Nr. 454	dto
14	2	supporting ring ø 34ox31ox15 1171-017.497	dto
15	6	main seal ø34ox31ox7,5 1170-o16.498	dto
16	2	thrust collar ø34ox31ox7,5 1172-o18.325	dto
17	2	slide ribbon 4ox2,5x1o71 PTFE 561	dto
18	2	dto 4ox2,5x 584 PTFE 561	dto
19	4	O-ring OR 33o-4 o6o77/43	dto
2o	8	piston joint 25o/22o/18 Sn NA 400	cyl.of side roller comp. ø25o/18ox57o stroke
21	4	bar joint 18o/2oo/15Sn Ni 300	dto
22	4	stripper AUAS 18o/195/1o/14 249o6/71	dto
23	4	slide ribbon 35x2,5x581 PTFE 561	dto
24	4	dto 4ox2,5x788,2 PTFE 561	dto
25	4	O-ring OR 24o-3 o5816/58	dto
26	1	gasket joint ø 54o/457 x 1o	bearing covering
27	1	dto ø 46o/312 x 10	" "
28	4	self aligning roller bearing no. 24/38 C-W 33	rollers
29	4	supporting rail 85 x 10 x 150	hydro drive upper roller; details - lower roller
30	4	dto 80 x 10 x 150	dto
31	1	self aligning roller bearing 23956 CD/W 33	dto
32	1	grooved ball bearing 16o6o	dto
33	1	self aligning roller bearing 23948 CD/W 33	dto

List of Spare Parts

MECHANICAL PARTS

Customer ACF Industries, Milton, Penns. | WO 10'554 | Page 2

Representative G.u.E., Webster/Mass. | Type of Machine. VRM-hy 12' x 1½"

No	Pcs	Nomination		Belonging to
34	1	grooved ball bearing	61848	hydro drive upper roller;details-lower roller
35	4	bush	MB 45530 DU	dilting device 25 T-details
36	4	dto	ø 90/80 x 140	details of upper plate supporting
37	4	ring	ø 130/80 x 5	dto
38	8	grooved ball bearing	6207	dto
39	1	nut	ø 124/65 x 100	upper plate supporting - spindle bearing
40	1	ball-and-socket joint	GE 100 DSS	dto
41	1	axial ball bearing	53312 U	dto
42	1	self aligning roller bearing	1312	dto
43	2	shaft nut	KM 11	dto
44	1	safety plate	MB 11	dto
45	1	ring	ø 120/75 x 50	dto
46	1	grooved ball bearing	6215	details of upper plate supporting
47	1	dto	6210	dto
48	1	ball-and-socket joint	GE 70 CS-2 Z	jointring of woller tilting cyl.
49	2	pin	ø 13 x 133	brake suveying BR.1;BR.2;M210;M50
50	2	R-ring	R-no. 27	dto
51	2	dto	R-no. 6	dto
52	8	outside lamellas	ø 254/188 x 3	pneum.brake to M201-parts of BR.2
53	8	inside lamellas	ø 240/175 x 3	dto
54	16	brake liner	ø 240/188 x 2	dto
55	4	R-ring	no. 76	dto
56	2	round cable	ø 3 x 845	dto
57	1	grooved ball bearing	6017.2 Z	hinge of control desk
58	1	inclined ball bearing	7218 B	dto
59	1	Nilos-ring	7218 AVH	dto
60	1	axial-cyl.ball bearing	81118	double hing of control desk
61	1	pin bearing	NK 90/35	dto
62	1	pin cage	K 90 x 97 x 30	dto
63	6	brake liner	ø 88/58 x 4	compensating device Gr. 2
64	2	rack	ø 35 x 950; m = 3	dto
65	2	dto	ø 35 x 540; m = 3	dto
66	2	dto	ø 35 x 950; m = 3 and m=1	dto

List of Spare Parts

MECHANICAL PARTS

Customer ACF Industries, Milton/Penns. WO 10'554

Representative G.u.E., Webster, Mass.

Type of Machine. VRM-hy 12' x 1½"

No	Pcs	Nomination		Belonging to
67	18	DU-bush	MB 3525 DU	compensating device Gr. 2
68	6	dto	MB 3520 DU	dto
69	6	self aligning roller bearing	type 1206	dto
70	1	grease distributor	1 Zug ø 10/Abg.6/ø 6	central lubrication
71	1	dto	1 Zug ø 10/8 Abg. ø6	dto
72	2	dto	1 Zug ø 10/4 Abg. ø6	dto
73	4	greasing pipe, steel rounded	ø 6 x 1000	dto
74	2	dto	ø 6 x 550	dto
75	6	dto	ø 6 x 450	dto
76	1	dto	ø 6 x 550	dto
77	1	dto	ø 6 x 350	dto
78	2	grease distributor	1 Zug ø 10/4 abg. ø 6	

List of Spare Parts

HYDRAULIC PARTS

Customer ACF Industries,Milton

Representative G.u.E.,Webster/Mass.

WO 10'554

Page 4

Type of Machine. VRM-hy 12' x 1½"

No	Pcs	Nomination		Belonging to
1	1	cut-off valve		PAH 2o/100 SA
2	2	relief pressure valve	NG 10	DBDs 10 G 10/315
3	3	manometer	o-4oo bar	Nr. 1127
4	1	magnet valve	NG 16	H-4WEH 16 H 3o/6 AW115-6oNZ4
5	1	manometer	o-16o bar	Nr. 1125
6	1	flow governor	NG 1o	2 FRM 1o-2o/5o L
7	1	magnet way valve	NG 1o	4 WE 1o C 4.o/W 115o - 6o N
8	4	dto	NG 16	H-4WEH 16 J 3o/6 AW115-6o NZ4
9	3	dto	NG 16	H-4WEH 16 C 3o/6 AW115-6O NZ4
10	1	pilot nonreturn valve	NG 16	Z 2 S 16
11	2	compensating valve		SG 22 BN + AE-22-1"
12	1	relief pressure valve	NG 10	DBDh 1o G 1o/315
13	4	choked nonreturn valve		RD 3- R ¼"
14	1	set of joints for hydr. cylinder		ø 8o x 53o stroke (Tilting Bearing)
15	1	dto		ø 125 x 5o " (Tilting Device)
16	6	brake valve leak-proofed		VLBV 12 T - L 1"
17	3	nonreturn valve		RHZ-25-SR-ed
18	1	compensating valve		SG 22 AN+AE-22-1"
19	4	nonreturn valve		RHD 25-S
20	1	dto		RVD 25-S
21	3	dto		RHV 25-SR-ed
22	1	relief pressure valve	NG 10	DBDs 1o G 1o/4oo
23	2	high pressure pipe	ø 16 x 6oo	
24	2	dto	ø 16 x 6oo	
25	4	dto	ø 8 x 14oo	
26	4	dto	ø 25 x 14oo	
27	4	dto	ø 25 x 14oo	
28	4	dto	ø 25 x 14oo	
29	1	double pump	4-H1-25+4-H3-25 dextrorotatory	
3o	1	gear pump	CB 4212 destrorotatory serie 4/3	
31	2	induction filter	UC-SE-1219	
32	2	dto	UC-SE-1323	
33	1	recurrent filter	UC-2422	

List of Spare Parts

HYDRAULIC PARTS

Customer ACF Industries, Milton, Penns. WO 1o'554 Page 5

Representative G.u.E., Webster/Mass. Type of Machine. VRM-hy 12' x 1½"

No	Pcs	Nomination		Belonging to
34	1	recurrent filter	FR 4oo/25 PUF	
35	2	oil cooler		T8-o4,42-2, Z.Nr. K67o-117.o II
36	2	thermostatic watervalve		3 N 2162 + 3 N oo5o
37	1	manometer	o-25o bar	no. 1126
38	8	nonreturn valve	RHD-16 S	
39	1	pre-controlled relief pressure valve		DB 3o2-1o/315 U
40	1	4/3-way valve		4 WEH 32 G 3o/8 LW-6o N
41	1	hydro motor	lower roller	M 2o1-66 Br
42	1	dto	upper roller	M 2o1-156 Br
43	1	dto		RMF-1oo
44	1	2/2 way-valve	WR 2-2-½	
45	1	high pressure pipe	2767-32x115o	2 x 19o637-32-S 9o° left
46	2	dto		ø 16 x 6oo
47	1	dto		ø 8 x 6oo
48	1	dto	2181-24X 3400	2 x G 479o-24-S 9o° right
49	1	dto	2651-32 x 19oo	1 x G 4774-32-S, 1xG4779-32-S
5o	2	dto	2781-24 x 17oo	1 x G 479o-24-S, 1xG4744-24-S
51	1	dto	2781-24 x 14oo	2 x G 479o-24-S, 9o° right
52	1	dto	2781-32 x 8oo	2 x G 479o-32-S, 9o° left
53	1	oil level indicator with thermometer		UC-FLT-139o
54	1	filling and exhausting filter		UC-AB-1163-4o
55	1	relief pressure valve	NG 1O	DBDs 1o G 11/2oo
56	1	4/3-way-valve	NG 1o	4 WE 1O J 4.o/W 115-6o N
57	1	high pressure valve	2781-24 x 12oo	1xG 479o-24-S, 1xG 4745-24-S 9o° right
58	1	dto	2781-32 x 9oo	2xG 479O-32-S, 9oo left
59	2	dto		ø 16 x 12oo

List of Spare Parts

PNEUMATIC PARTS

Customer ACF Ind.,Milton,Penns.

Representative G.u.E.,Webster/Mass.

WO 10'554

Page 6

Type of Machine VRM-hy 12' x 1½"

No	Pcs	Nomination	Belonging to
1	1	maintenance unit R ½"	850 P
2	1	4/2-way-magnet valve R ½"	Mc-4-½" 115V/60Hz
3	2	choked nonreturn valve R ¼"	GRO-¼"
4	2	quick air release valve R ¼"	SE-¼"
5	1	4/2-way-magnet valve R ½"	Mc-4-½" 115V/60Hz
6	10	set of joints for pneum.cyl.	ø 80/40 x 22 stroke
7	1	choked nonreturn valve	GR 3/8"
8	1	synthetic pipe	ø 8 x 5 m lg

HÄUSLER
BIEGEMASCHINEN

MASCHINENFABRIK CHR. HÄUSLER GMBH · 7888 RHEINFELDEN-HERTEN

LIST OF PARTS to HYDR. DIAGRAM VRM 3,66/38-30.2

Pcs		Pos.	Type	Producer
1	hydr. groupe	1	S.35.1	Häusler
1	by-pass valve	2	PAH 20/100 SA plate 1"G	Hagenbuch ✕
2	relief pressure valve	3	DBDS 10 G 10/315	Rexroth
3	manometers 0-400 bar	4	1127	Wika
1	magnet valve NG 16 +base pl.	5	H-4WEH 16 H30/6AW115-60NZ4+G174/1	Rexroth
1	manometer 0-160 bar	6	1125	Wika
1	flow governor + base plate	7	2 FRM 10-20/50L +G280/1	Rexroth
1	magnet valve NG 10 + base pl.	8	4 WE 10C 4,0/W 115 -60N+G67/1	Rexroth
4	way-magnet valve NG 16	9	H-4WEH 16J30/6AW115-60NZ4+G174/1	Rexroth
3	dto NG 16 + base plate	10	H-4WEH16C30/6AW115-60NZ4+G174/1	dto
1	pilot nonreturn valve NG16	11	Z2 S 16 to valve 9.4	dto
2	compensating valves	12	SG 22 BN + AE-22- 1"G	Hagenbuch ✕
1	relief pressure valve NG 10	13	DBDH 10 G 10/315	Rexroth
4	choked nonreturn valve	14	RD 3-R½"	Hawe ✓
1	longitud.interlacing plate	15	1"G to Pos. 9	Rexroth
2	hydr.cylinder LR	16	ø 340 x 165 stroke	Häusler } SEALS
4	dto SR	17	ø 250 x 570 stroke	Häusler } SEALS
1	dto tilting bear.	18	ø 80 x 530 stroke	Weinmann } SEALS
1	dto tilting dev.	19	ø 125 x 50 stroke	dto } SEALS
6	brake valve leak-proofed	20	VLBV 12T-L 1"G	Hagenbuch ✕
3	nonreturn valve	21	RHZ-25-SR-ed	Ermeto ✓
1	compensating valve	22	SG22AN+AE-22-1"G	Hagenbuch
4	nonreturn valve	23	RHD 25-S	Ermeto ✓
1	dto	24	RVD 25-S Vorsp.dr. 10 bar	Schäfer
3	dto	25	RHV 25-SR-ed	Ermeto
1	relief pressure valve NG 10	26	DBDS 10 G 10/400	Rexroth
2	high pressure pipe HD	27	NW12 ø 16 x 600	Aeroquip
2	dto	28	NW12 ø 16 x 600	dto
4	dto	29	NW4 ø 8 x1400	dto
4	dto	30	NW20 ø 25 x1400	dto
4	dto	31	NW20 ø 25 x1400	dto
4	dto	32	NW20 ø 25 x1400	dto
1	E-motor Baugr.180M	33	JP44;V1 N=25HP, n=1800	Siemens
1	double pump	34	4-H1-25+4-H3-25 dextrorot.	Truninger ✓
1	E-motor Baugr.315S	35	JP44;V1 N=150HP,n=1800	Siemens
1	gear pump	36	CB 4212 dextrorot.serie4/3 ✕	HPJ;Hagenbuch
2	induction filter	37	UC-SE-1219	UCC ✓
2	dto	38	UC-SE-1323	dto ✓
1	recurrent filter	39	UC-2422	dto ✓
1	dto	40	FR400/25PUF	Fawcett
2	oilcooler	41	T8-04,42-2;Z.no.K670-117.0II	Lüco
2	thermostatic watervalve	42	3N2162+3N0050	Danfoss
1	manometer	43	1126	Wika
8	nonreturn valve	44	RHD-165	Ermeto ✓
1	pre-controled relief pr.v.	45	CB302-10/315U+G21/1	Rexroth
1	4/3 way-valve	46	4WEH32G30/8LW -60N+G303901	dto

HÄUSLER
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MASCHINENFABRIK CHR. HÄUSLER GMBH · 7888 RHEINFELDEN-HERTEN

LIST OF PARTS to HYDR. DIAGRAM VRM 3,66/38-30.2 (2)

Pcs		Pos.	Type	Producer
1	oil motor LR	47	M2o1-66 Br. Häusler	Rollstar
1	dto UR	48	M2o1-156 Br.Häusler	"
1	hydr.motor with clutch hous.	49	RMF-100	Oliostip
1	2/2 way valve	50	WR 2--2-½	Hawe
1	hydr.pipe 2767-32-1150	51	2x 190637-32-S. 90°left	Aeroquip
2	dto	52	ø 16 x 6oo	dto
1	dto	53	ø 8 x 600	dto
1	dto 2181-24x3400	54	2 x G 4790 - 24-S 90°right	dto
1	dto 2651-32x1900	55	1 x G 4775 - 32-S, 1xG4779-32-S	dto
2	dto 2781-24-1700	56	1 x G 4790 - 24-S, 1xG4744-24-S	dto
1	dto 2781-24-1400	57.1	2 x G 4790 - 24-S 90° right	dto
1	dto 2781-32- 800	58.1	2 x G 4790 - 32-S 90° left	dto
1	oil level ind.with thermom.	59	UC-FLT-1390	UCC
1	filling and exhausting filter	60	UC-AB-1163-40	dto
1	relief pressure valve NG10	61	DBDs 10G11/200	Rexroth
1	4/3-way-valve NG10+conecting plate	62	4WE10J4.0/W115-60N+G67/1	dto
1	hydr. pipe 2781-24x1200	57.2	1xG4790-24-S,1xG4745-24-S,90°right	Aeroquip
1	dto 2781-32x 900	58.2	2xG 4790-32-S 90° left	dto
2	dto	65	NW12 ø 16 x 1200	dto

HÄUSLER
BIEGEMASCHINEN

MASCHINENFABRIK CHR. HÄUSLER GMBH · 7888 RHEINFELDEN-HERTEN

LIST OF ELECTRICAL PARTS (WO 10'554) VRM-hy 12' x 1½"

Pos.	Pcs.		Type	Manufacturer	
1	1	switch cabinet	1800x1600x400	Rittal	
2	1	automatic switch	FJ 3-B 225 A	A + B	CB 1
3	1	door locking	D 11 CF 2	dto	CB 1
4	1	fuse lower part 3-pol.	1491-N 523	Shawmut	FU 1
5	3	fuses 225 A	OTS 225/6oo	dto	FU 1
6	2	motor relay Gr.4	7o9-EOD 1o3	A + B	M1+M3
7	1	dto Gr.3	7o9-DOD 1o3	dto	M2
8	1	timing relay 0,2-6o sec.	7oo NT-4oo-A1	dto	TR 1
9	3	heaters	N 75 - 1oo A	dto	OL 1
10	1	E-motor 15oHP; 18oo RpM	KN 5-28o S-BB051	Schorch	MTR 1
11	1	fuse lower part 3-pol.	1491-N 333	A + B	FU 2
12	3	fuses 70 A	OTS 7o/6oo V	Shawmut	FU 2
13	1	motor relay Gr.2	7o9-COD 1o3	A + B	M 4
14	3	heaters	N 43 - 35 A	dto	OL 2
15	1	E-motor 25HP;18oo RpM	KA 3-18o M-QB055	Schorch	MTR 2
16	1	fuse lower part 3-pol.	1491-N 126	A + B	FU 3
17	3	fuses 2 A	OTS-2/6oo V	Shawmut	FU 3
18	1	motor relay Gr.00	7o9-TOD 1o3	A + B	M 5
19	3	heaters	N 5 - 0,8 A	dto	OL 3
2o	1	E-motor 1/3HP;1oooRpM	DPIN 71L/6	FFD-Wien	MTR 3
21	2	fuse lower part 1-pol.	1491-N 121 4	A + B	EU 4
22	2	fuses 3 A	OTS 3é6oo V	Shawmut	FU 4
23	1	transformer	STE 1ooo-UL	Bobolowski	T 1
24	2	fuse lower part 1-pol.	1491-N 121	A + B	FU5 + FU6
25	2	fuses 10 A	OT 1o/25o V	Shawmut	FU5 + FU6
26	1	program transmitter o-3omin.	IPA-1	Schleicher	TR 2
27	1	aux. contactor 5 ND	7oo-N 6oo A 1	A + B	CR 1
28	13	dto 2 ND	7oo-N 2oo A 1	dto	CR2-CR14
29	1	dto 4 ND	7oo-N 4oo A 1	dto	CR 15
30	4	dto 2 ND	7oo-N 2oo A 1	dto	CR 16-19
31	1	emercency switch off,red	8oo T - FX6A1	dto	PB 1
32	2	signal lamp, red	8oo T - P 16 R	dto	LT1+LT2
33	2	sending key, red	8oo T - B 6 A	dto	PB2 + PB4
34	2	dto green	8oo T - A 1 A	dto	PB3+PB5
35	3	signal lamp, yellow	8oo T - P 16 A	dto	LT3-LT5
36	1	limit switch, contactless	KWU-9	Kübler	LS 1
37	1	signal lamp, red	8oo T - P 16 R	A + B	LT 6
38	2	Micro-limit switch	BZE 7-2 RQ-PG	Honeywell	LS2+LS3
39	1	signal lamp, white	8oo T - P 16 W	A + B	LT 7
4o	1	reversing switch 5pos.	no.o2.1o.3o2.861	Spälti	SS 1
41	2	sending key, black	8oo T - A 2 B	A + B	PB6+BB7
42	2	dto "	8oo T - A 2 A	dto	PB8+PB11
43	2	dto "	8oo T - A 2 B	dto	PB9+PB10
44	2	dto "	8oo T - A 2 B	dto	PB12 + PB13
45	1	dto "	8oo T - A 2 A	dto	PB 14
46	4	limit switches	8o2 T - AW 1	dto	LS 4-7
47	4	sending key, black	8oo T - A 2 B	dto	PB15-PB18

·/·

LIST OF ELECTRICAL PARTS (WO 10'554) VRM-hy 12' x 1½"

Pos.	Pcs.		Type	Manufacturer	
48	1	selecting switch 2 pos.	8oo T - H 2 B		SS 2
49	1	signal lamp, white	8oo T - P 16 W	A + B	LT8
50	4	optical indicating device	4o W, 12V; 4,6 A	Blattner	LT9-LT12
51	4	transmitter to opt.ind.dev.	2,65; 115V-6oCy	dto	MTR 4-7
52	4	fuse lower part 1-pol.	1491-N 121	A + B	FU7-10
53	4	fuses 6 A	OT 6/250 V	Shawmut	FU 7-10
54	1	fuse lower part 3-pol.	N 1491 - N 126	A + B	FU 11
55	3	fuses 10 A/6oo V	OTS 1o/6oo	Shawmut	FU 11
56	1	reversing contactor to MTR 8	7o5-AOD 1o3	A + B	M6F +M6R
57	3	heaters	N25 - 5,74 A	dto	CL 4
58	1	gear motor 2,2kW;50,4min.$^{-1}$	CB3-100L/4D	Bockwoldt	MTR 8
59	4	auxiliary contactor 2 NO	7oo-N 2oo A 1	A + B	CR 20-23
60	1	limit switch	8o2 T-DS 7	dto	LS 8
61	4	dto	8o2T-AW 1	dto	LS 9-12
62	6	sending key, black Push button	8oo T - A 2 B	dto	PB 19-24

BETRIEBS—ANLEITUNG
INSTRUCTION DE SERVICE
INSTRUCTION MANUAL

INHALTSVERZEICHNIS DER BETRIEBSANLEITUNG
INDEX DES INSTRUCTIONS DE SERVICE
INDEX INSTRUCTION MANUAL

HYDR. 4-ROLLER PLATE BENDING MACHINE Type VRM-hy 12' x 1½"

NO — 19	WO 10'554		P.E. JUNI 73 PE/eh 14.9.78

Chr. Häusler
DORNACH
HERTEN

ACF Industries, Inc.
St.Charles, Missouri

PNEUM. BRAKE
UPPER ROLLER

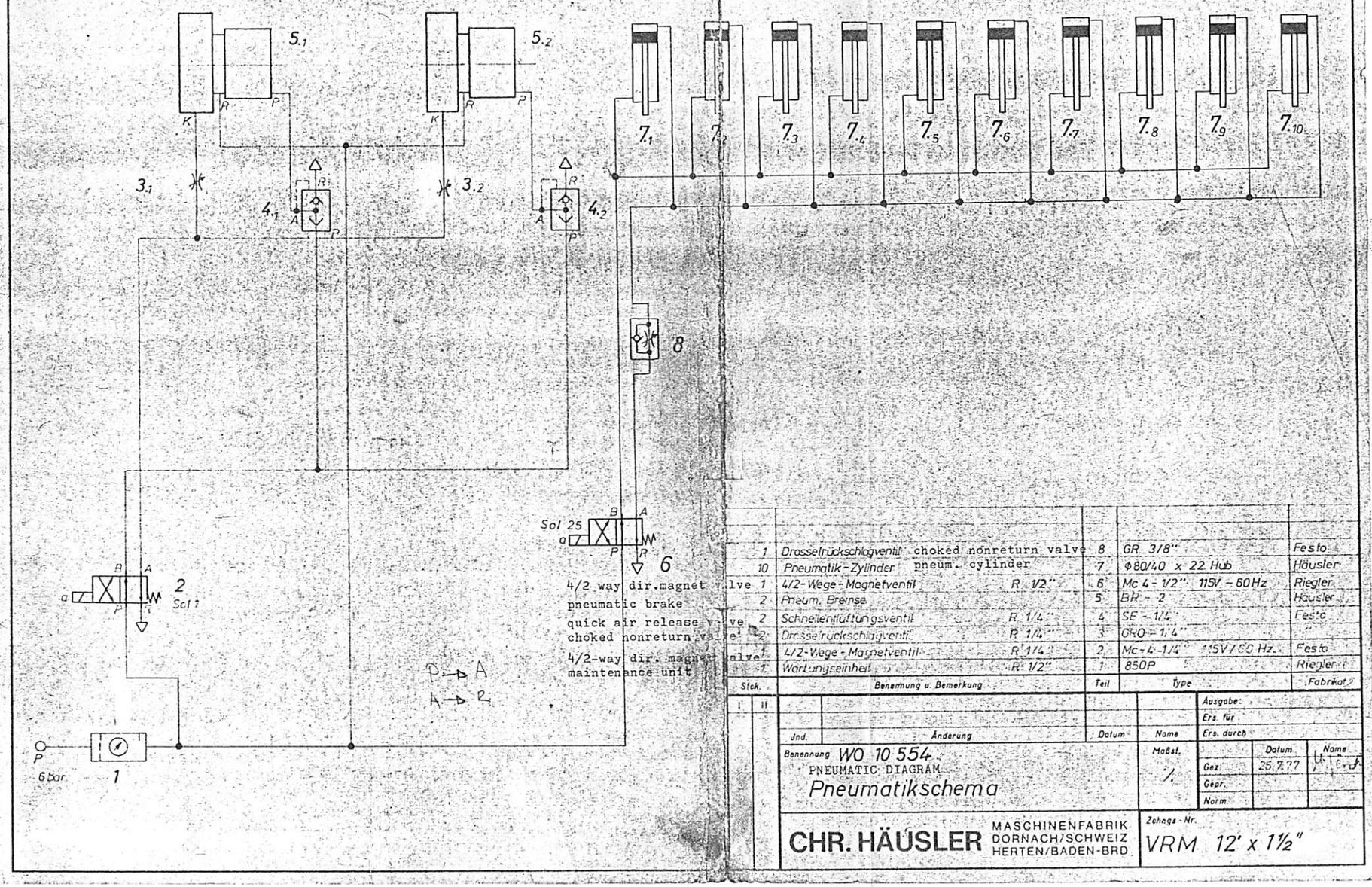
Pn. Bremse
Oberwalze

PNEUM. BRAKE
LOWER ROLLER

Pn. Bremse
Unterwalze

BRAKE CYLINDER for CONVEYING ROLLERS on INFEEDING CAR

Bremszylinder für Förderrollen auf Einlaufwagen



Stck.	Benennung u. Bemerkung	Teil	Type	Fabrikat
1	Drosselrückschlagventil choked nonreturn valve	8	GR 3/8"	Festo
10	Pneumatik-Zylinder pneum. cylinder	7	ϕ80/40 x 22 Hub	Häusler
1	4/2-Wege-Magnetventil R 1/2"	6	Mc 4-1/2" 115V – 60Hz	Riegler
2	Pneum. Bremse	5	BR - 2	Häusler
2	Schnellentlüftungsventil R 1/4"	4	SE - 1/4"	Festo
2	Drosselrückschlagventil R 1/4"	3	GRO - 1/4"	Festo
1	4/2-Wege-Magnetventil R 1/4"	2	Mc-4-1/4" 115V/60 Hz.	Riegler
1	Wartungseinheit R 1/2"	1	850P	Riegler

Ind.	Änderung	Datum	Name
I			
II			

Ausgabe:
Ers. für
Ers. durch

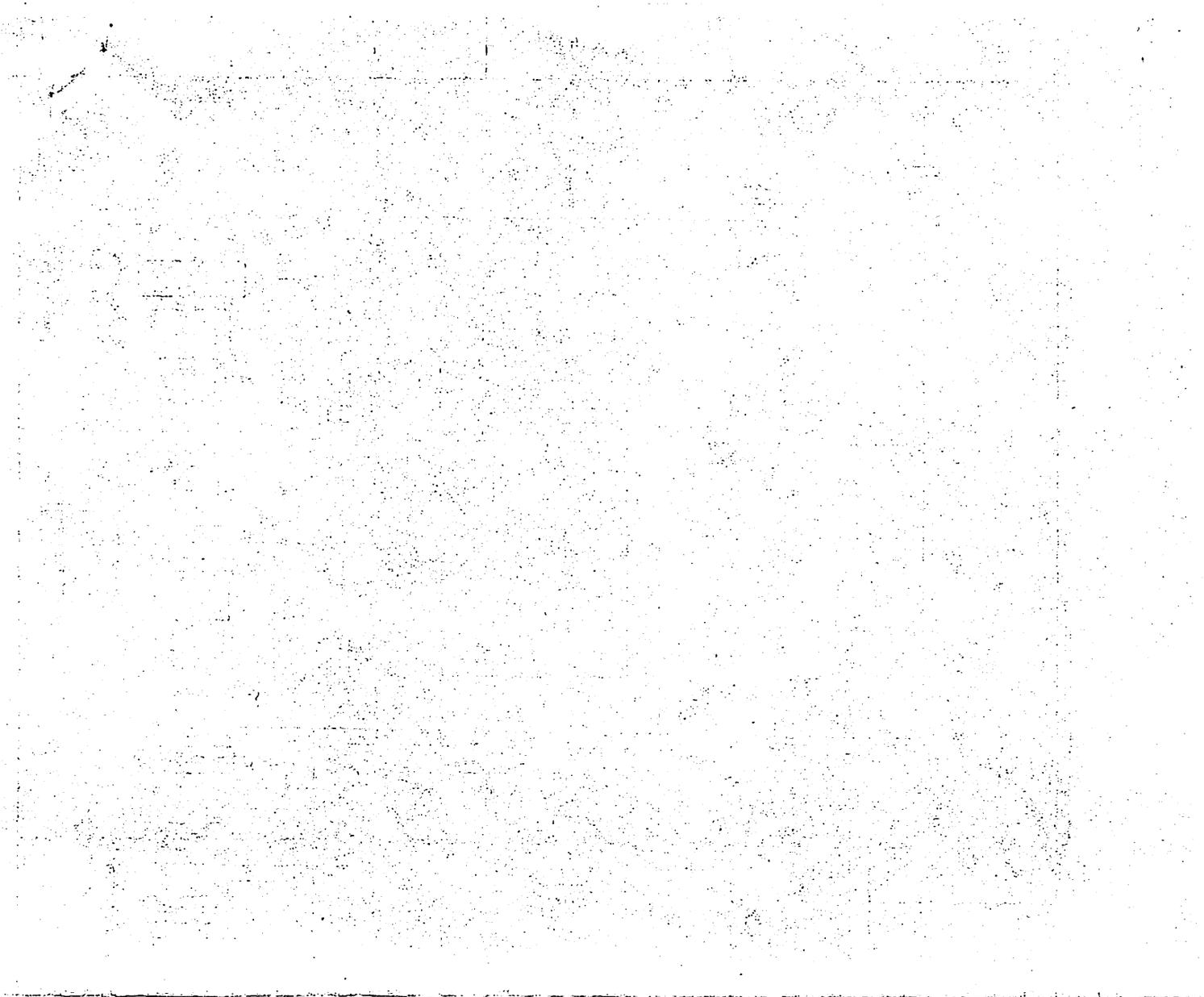
Benennung WO 10 554
PNEUMATIC DIAGRAM
Pneumatikschema

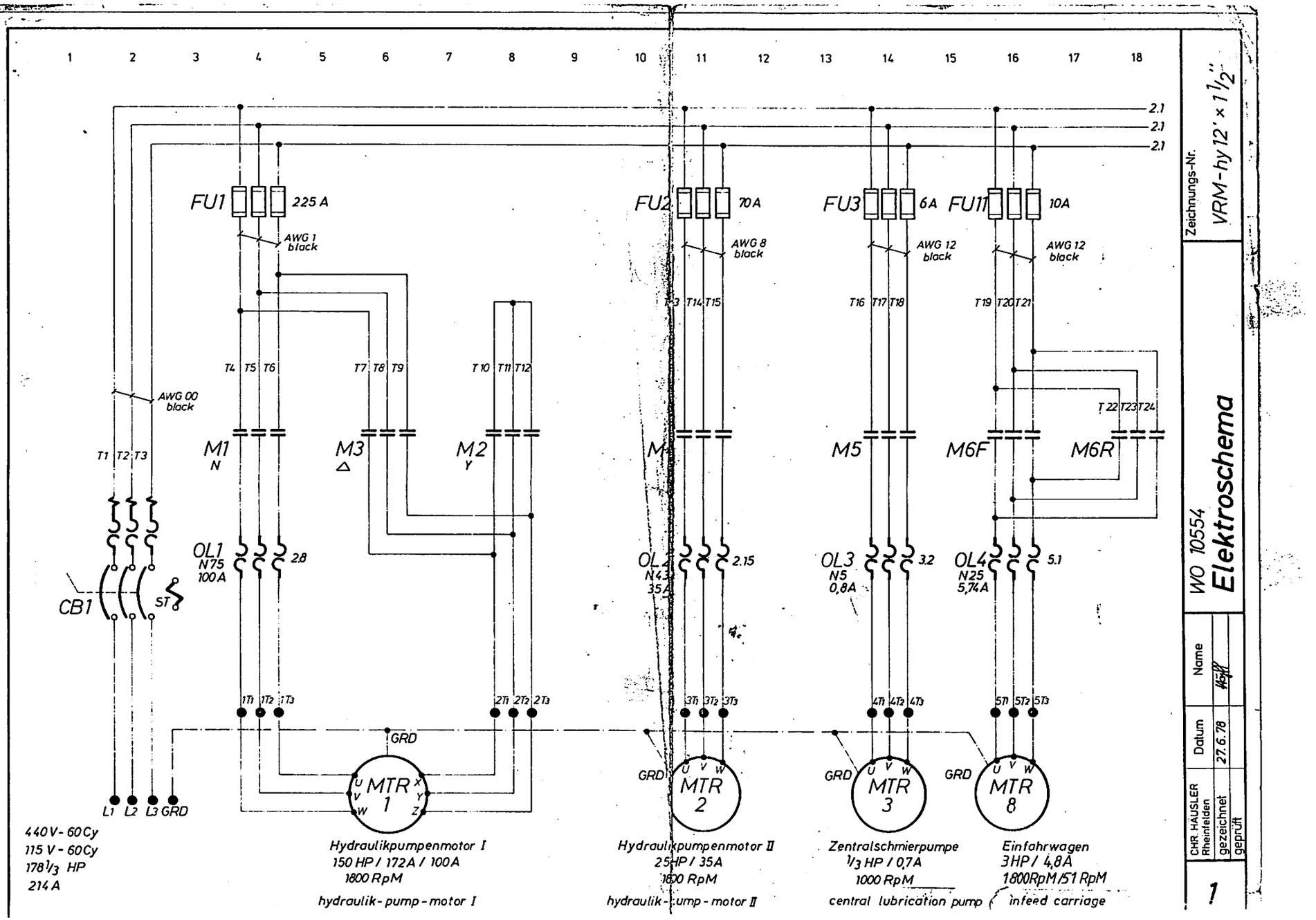
Maßst. 1/1

	Datum	Name
Gez.	25.7.77	
Gepr.		
Norm		

CHR. HÄUSLER MASCHINENFABRIK DORNACH/SCHWEIZ HERTEN/BADEN-BRD

Zchgs-Nr.
VRM 12" x 1½"



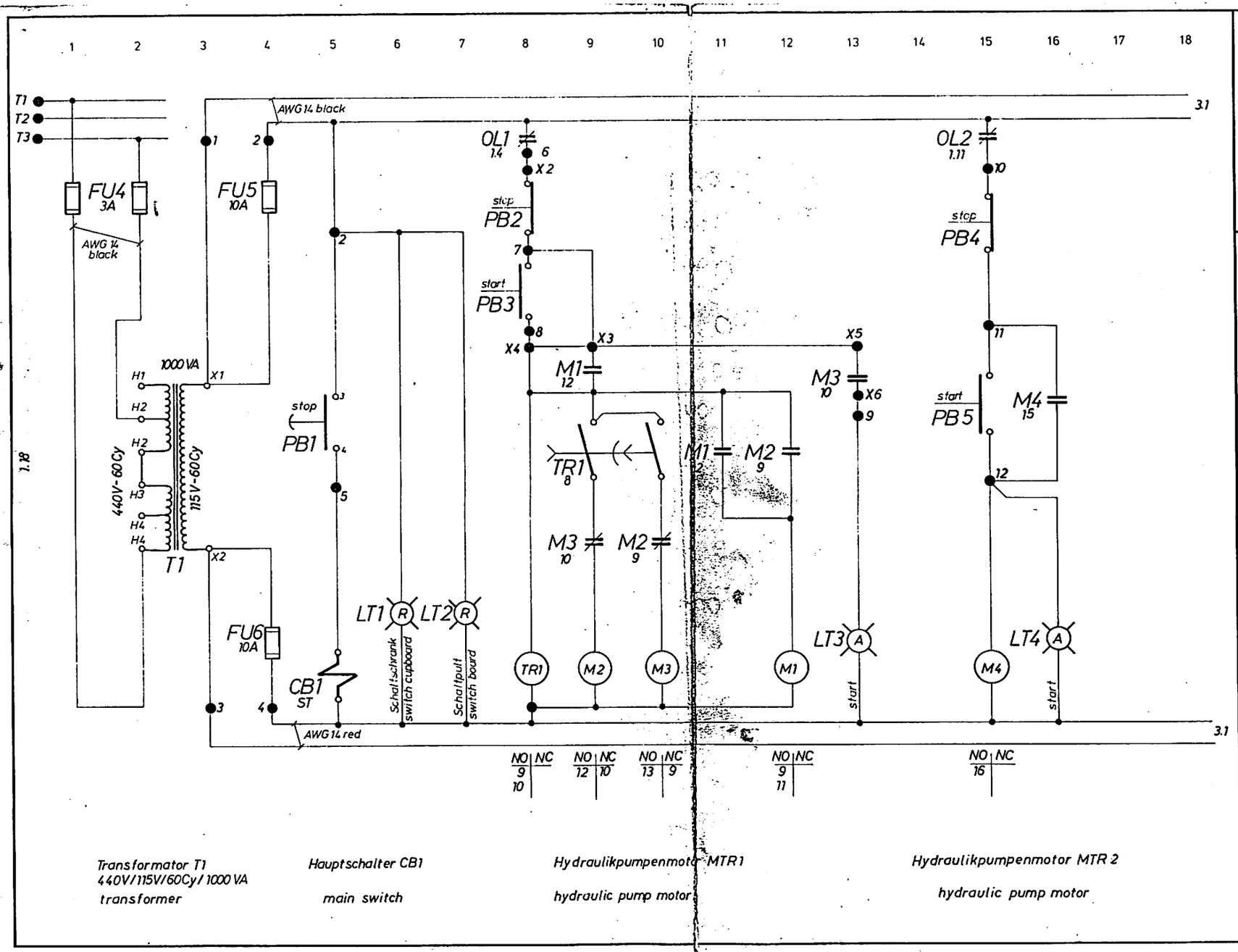


Zeichnungs-Nr. VRM-hy 12' × 1 1/2"

WO 10554 **Elektroschema**

	Name	Datum
CHR. HAUSLER Rheinfelden		
gezeichnet		27.6.78
geprüft		

1



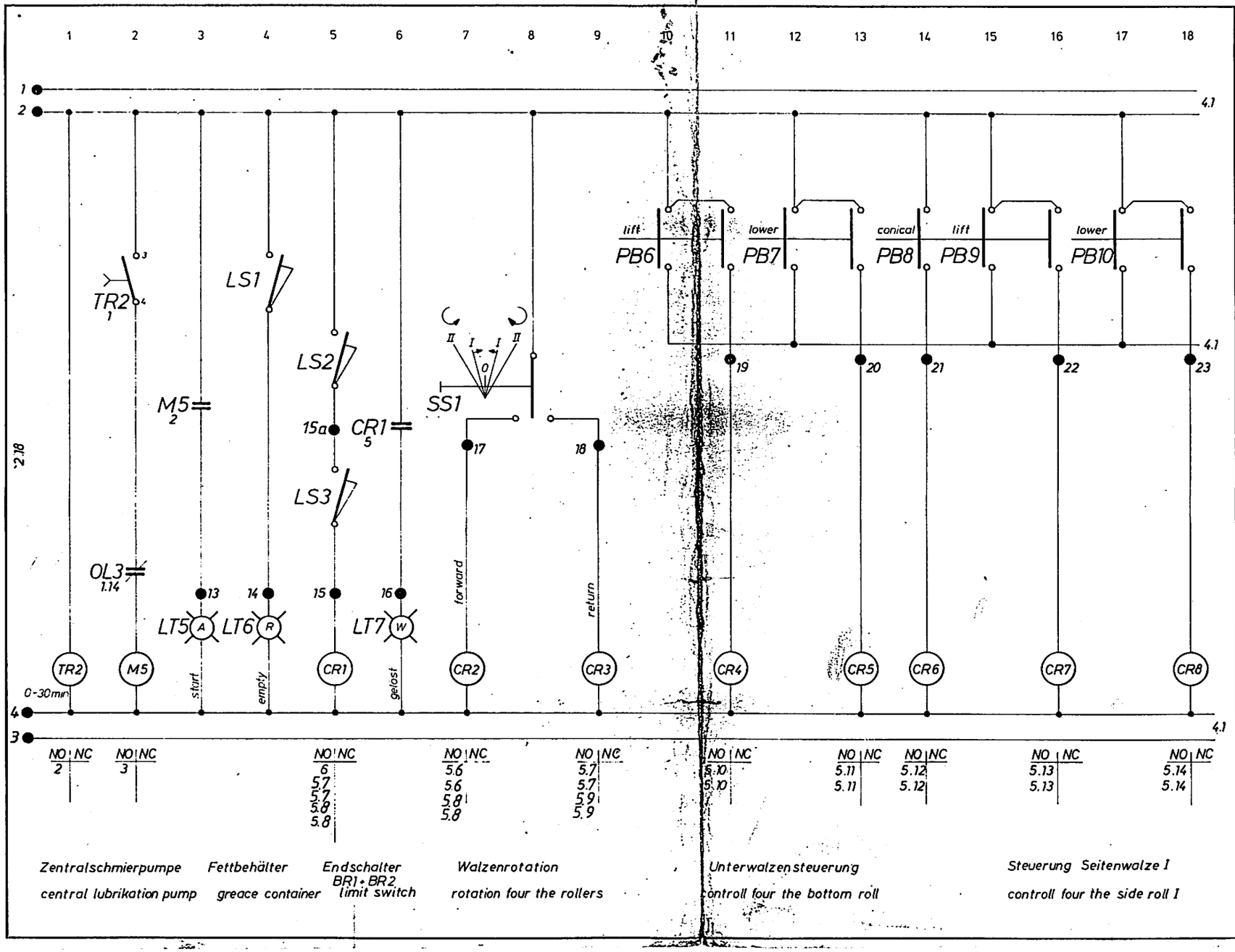
Transformator T1
440V/115V/60Cy/1000 VA
transformer

Hauptschalter CB1
main switch

Hydraulikpumpenmotor MTR1
hydraulic pump motor

Hydraulikpumpenmotor MTR 2
hydraulic pump motor

CHR. HÄUSLER Rheinfelden	Datum	Name	Zeichnungs-Nr. VRM-hy 12' × 1½"
gezeichnet	27.6.78		
geprüft			
2	WO 10554 Elektroschema		



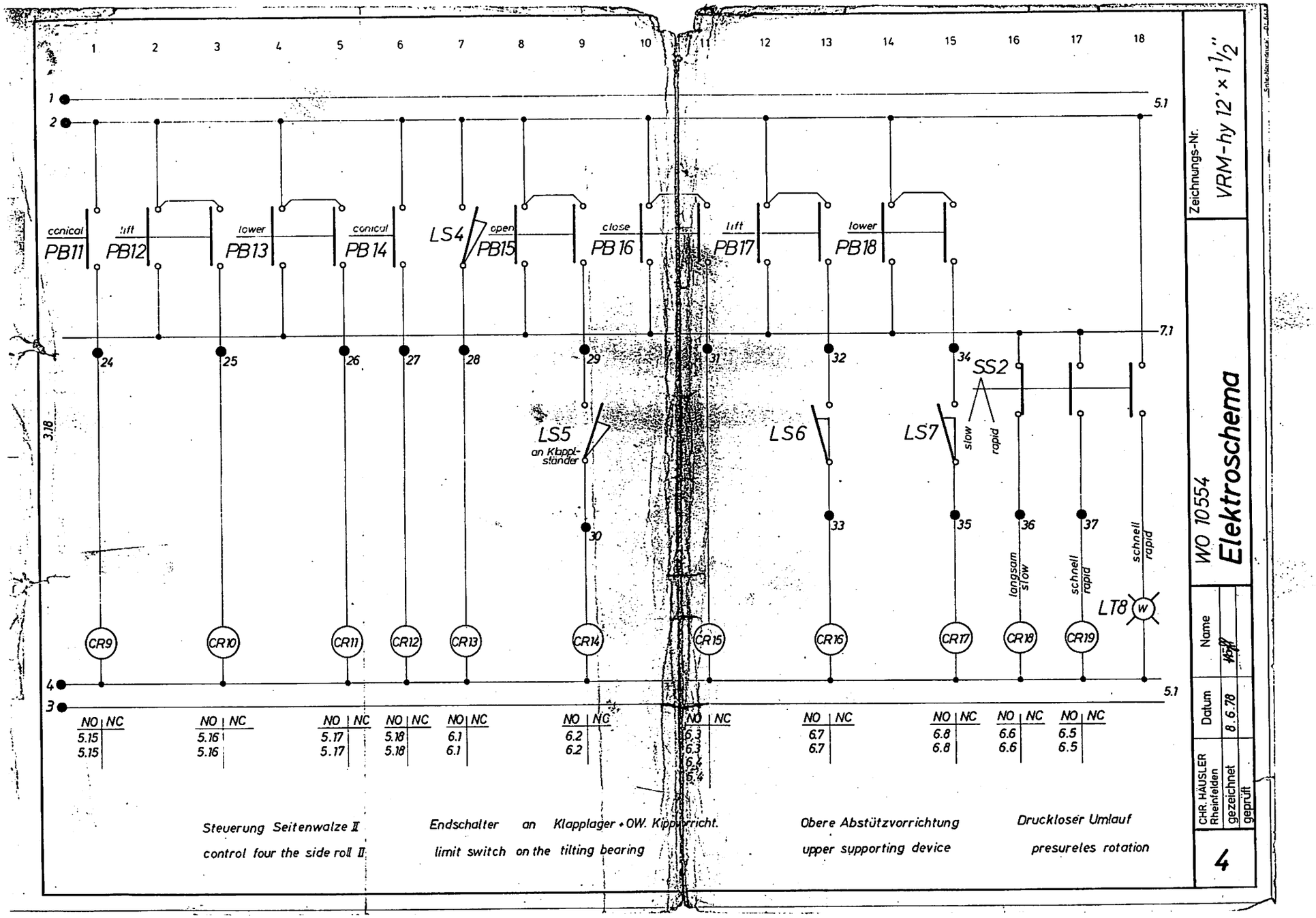
Zeichnungs-Nr. VRM-hy 12' × 1½"

WO 10554

Elektroschema

	Name	Datum
CHR. HAUSLER Rheinfelden		
gezeichnet		8.6.78
geprüft		

3



Steuerung Seitenwalze II
control four the side roll II

Endschalter an Klapplager + OW. Kippvricht.
limit switch on the tilting bearing

Obere Abstützvorrichtung
upper supporting device

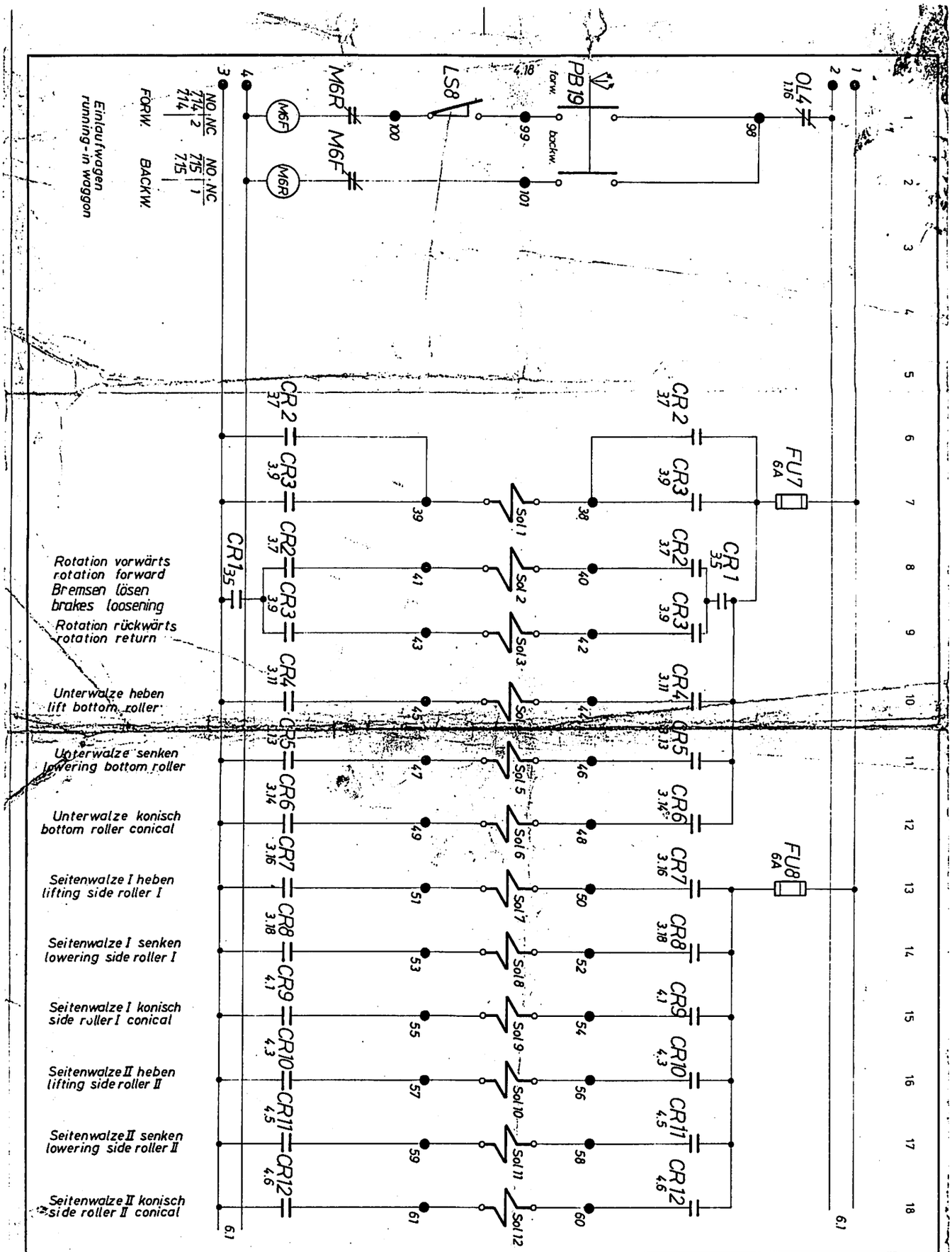
Druckloser Umlauf
presureles rotation

Zeichnungs-Nr. VRM-hy 12' × 1½"

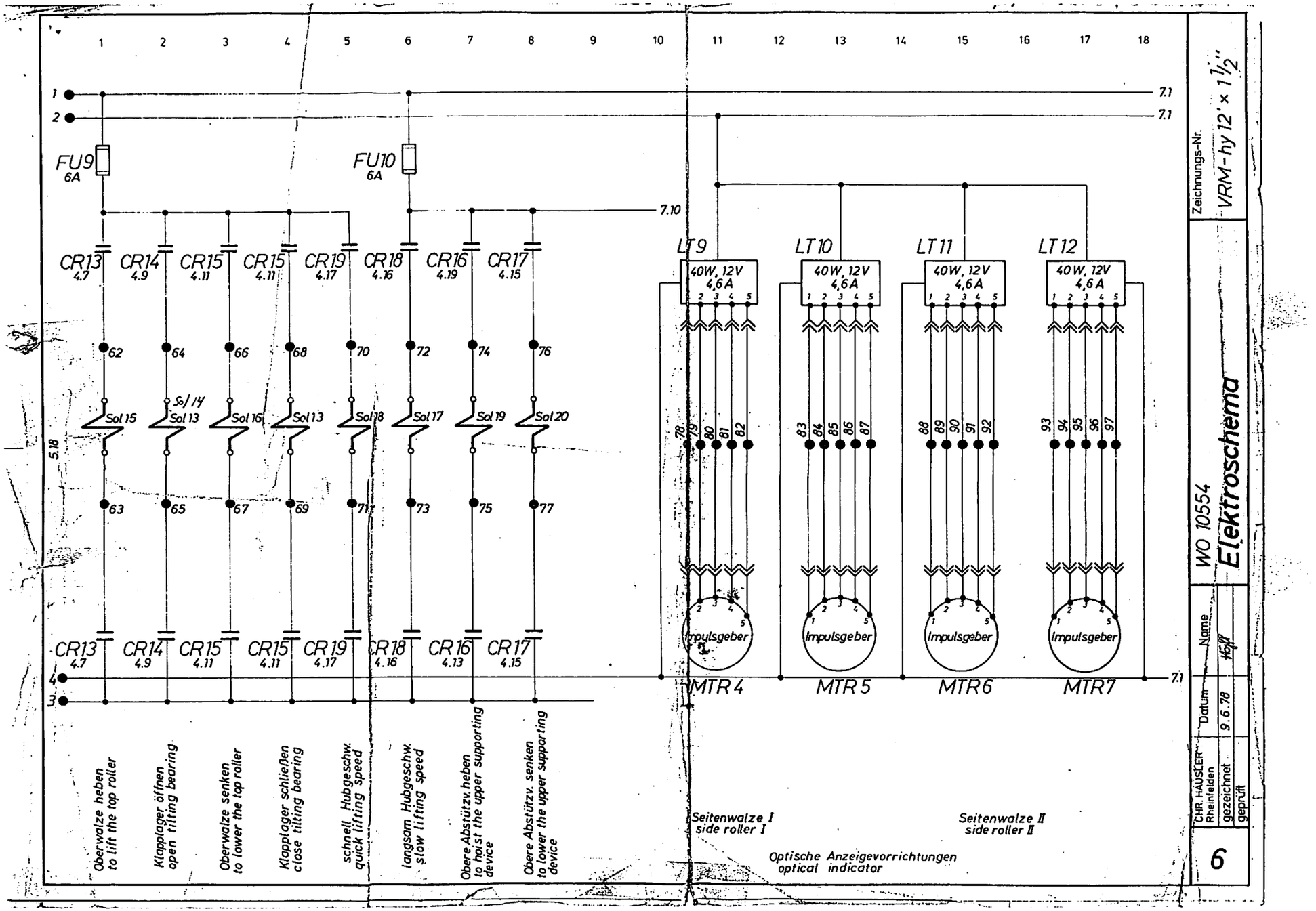
WO 10554 **Elektroschema**

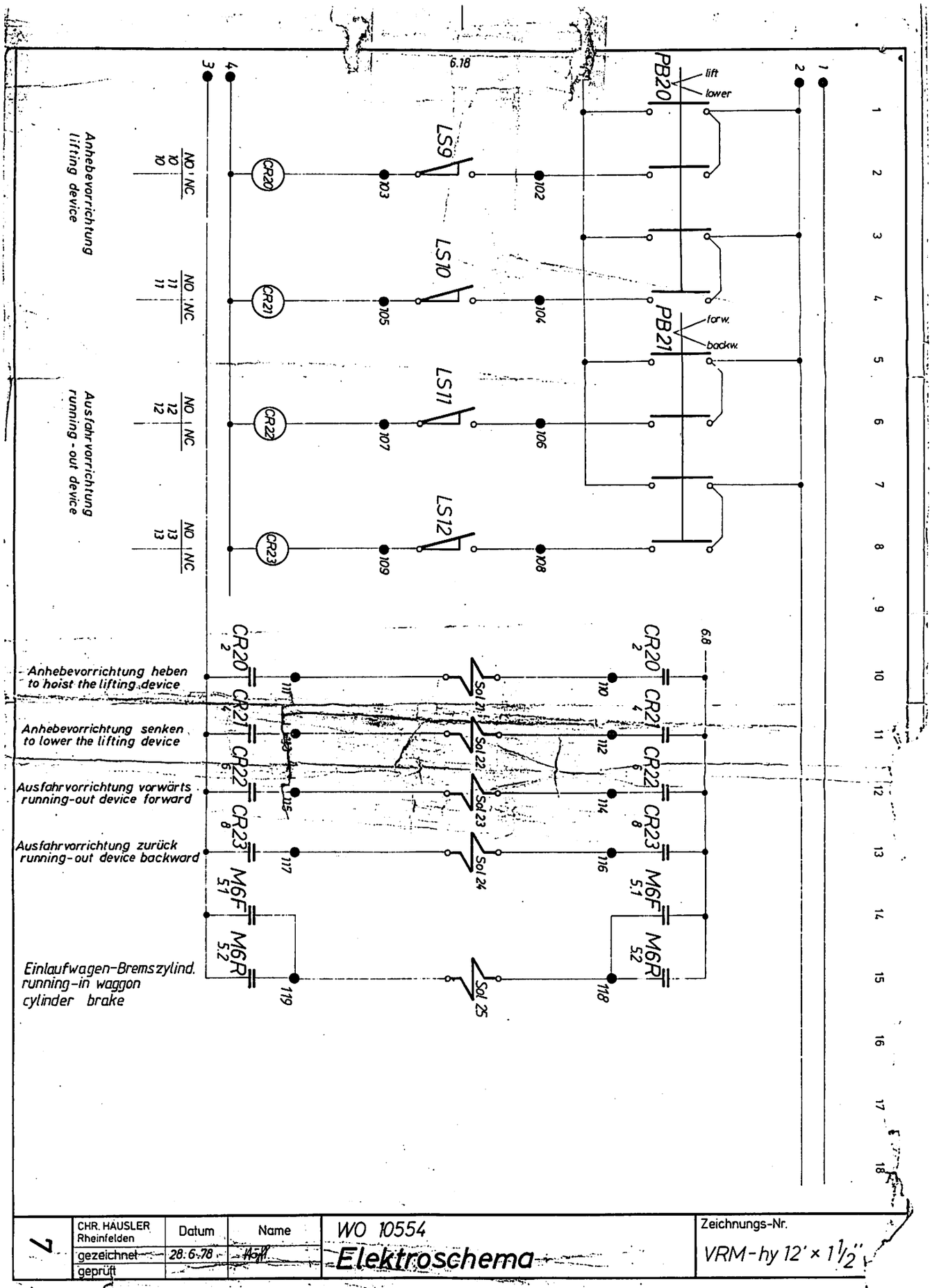
	Name	Datum
CHR. HÄUSLER Rheinfelden		
gezeichnet		8.6.78
geprüft		

4



5	CHR. HÄUSLER Rheinfelden	Datum	Name	WO 10554	Zeichnungs-Nr.
	gezeichnet	8.6.78		Elektroschema	VRM-hy 12" × 1 1/2"
	geprüft				


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
1
2
7.1
7.1
FU9 6A
FU10 6A
7.10
CR13 4.7
CR14 4.9
CR15 4.11
CR15 4.11
CR19 4.17
CR18 4.16
CR16 4.19
CR17 4.15
62 64 66 68 70 72 74 76
Sol 15
Sol 14
Sol 13
Sol 16
Sol 13
Sol 18
Sol 17
Sol 19
Sol 20
5.18
63 65 67 69 71 73 75 77
CR13 4.7
CR14 4.9
CR15 4.11
CR15 4.11
CR19 4.17
CR18 4.16
CR16 4.13
CR17 4.15
4
3
LT9
LT10
LT11
LT12
40W, 12V 4,6A
78 79 80 81 82
83 84 85 86 87
88 89 90 91 92
93 94 95 96 97
Impulsgeber
MTR 4
MTR 5
MTR 6
MTR 7
7.1
Oberwalze heben to lift the top roller
Klapplager öffnen open tilting bearing
Oberwalze senken to lower the top roller
Klapplager schließen close tilting bearing
schnell Hubgeschw. quick lifting speed
langsam Hubgeschw. slow lifting speed
Obere Abstützv. heben to hoist the upper supporting device
Obere Abstützv. senken to lower the upper supporting device
Seitenwalze I side roller I
Seitenwalze II side roller II
Optische Anzeigevorrichtungen optical indicator
Zeichnungs-Nr.
VRM-hy 12' × 1½"
WO 10554
Elektroschema
Name
Datum
CHR. HAUSLER Rheinfelden
gezeichnet 9.6.78
geprüft
6



7	CHR. HÄUSLER Rheinfelden	Datum	Name	WO 10554	Zeichnungs-Nr.
	gezeichnet	28.6.78	Häu	Elektroschema	VRM-hy 12" × 1½"
	geprüft				