

MFG: MACK  
NAME: RUNAWAY TRAIN  
Type: Non-Kidde

Die weite Welt ist mein Feld

SEIT 1791

**MACK**

KARUSSELL- UND FAHRZEUGBAU · PARKANLEGEN  
HEINRICH MACK GMBH & CO · MAUERMATTENSTR. 4 · D-7808 WALDKIRCH  
TELEFON 07881/8050-8058-8059 · TELEX 0772327

Toronto

RUNAWAY TRAIN MANUAL  
MACK

"BLUE GENTIAN"

Betriebs- und Wartungsanleitungen

Instructions for use and maintenance

revised dec.9.1985 see page 54

Page

- 3 Heights changed
- 4 - Building year of rail 1985 in addition
- Rail length changed from 260 m to 330 m
- 11 Lock nut and instructions in addition
- 13 One sentence, line 19 and 20 changed
- 14 Sentence 26 and 27 in addition
- 17, 18, 19 Replaced by new pages
- 27 a in addition
- 28 Position 20 changed
- 29 Position 21 changed
- 30 Power supply changed
- 38 Stock-no. of sliding contact changed
- 41 Line 22 changed
- 45 Oil filling from 4,5 to 3,5 ltr. changed
- 49 Recommendations in addition

dec.  
198  
Bau

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"Blue gentian"

Toronto

C o n t e n t s

General description	3
Technical data	4
Preparation for starting	5
Starting	6
Maintenance	7 - 10
Control of undercarriage	11
Function - specification	12 - 16
Wiring manual	17 - 27
Spare parts (Mack)	28 - 34
" " (Vahle)	35 - 38
" " (Baumüller)	39 - 43
" " (Flender)	44 - 45
Instructions V 200 (Flender)	46 - 49
Specifications (SKF)	50 - 53
Supplement	54 - 56

"Blue gentian"  
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### 1. General Description

The "Blue Gentian" (Blauer Enzian) is an highspeed circuit vehicle. The carriageway is made up of 2 pieces of circular pipes  $\phi$  108 mm and with a center-to-center distance of 900 mm and an intervening truss. The power tracks are located under the carriageway rail: two on the left and two on the right side, which are used for the electrical power supply of the vehicles. The rail rests upon planer jacks. The rail course corresponds to an eight where a merry-go-round is placed in the left loop. The minimum rail height amounts to 0,795 m, the maximum rail height to 6,1 m, the station being located at a height of 1,00 m. In the loops the carriageway rail is inclined towards the interior up to 40 degrees Maximum. In contrast to a roller coaster, which consists of single vehicles, the passengers of the "Blue Gentian" are transported in a train of 10 single vehicles, which are coupled together. Each vehicle has a driving unit, which delivers its power to the driving rail by means of a wheel. The train runs 36 km/h on an average, the final velocity amounting to 45 km/h. Driving velocity, acceleration and braking of the train can be set individually at the driving respectively the control table. The variable velocity, the complete passage of the apparatus at maximum speed, the comparatively short transitions between the loops and the merry-go-round with its narrow and the downhill driving constantly expose the passenger to the changing centrifugal forces. The driving-respectively the control table must be controlled constantly by someone. Even the driving wind contributes to a very special and terrific feeling.

2. Technical data - "Blue Gentian" (Blauer Enzian)

Building year : *train 1980, rail 1985*

Manufacturer : Heinrich Mack GmbH & Co.

Capacity of the train: 38 persons

Number of vehicles : 1 locomotive and 9 trailers

Capacity : about 1600 persons per Hour

Rail length: 330 m

Maximum velocity : 36 km/h

Driving power: 10 motors a' 17,5 KW

Greasing the track is wear reducing concerning the wheels.  
This lubricant film is to be tested every 2 - 3 days,  
particulary at the beginnings and the ends of the curves.

Used grease: Shell Retinax A, normal fat for ball bearing.

#### 4.2.2. Wheel housing - bearing on front - and rear axle

Use each week "Staburags N 12 M F from Klüber

Lubrication München KG

The fat has to step out slightly.

#### 4.2.3. Slide bearing between rear axle and the upper part of the chassis

In the first 14 days of the starting you should grease daily,  
then every 2 or 3 days or later, when it seems to be necessary.  
There should be a constant lubricant film.

Used grease: "Grafloscon A" Grafit - Haft - Schmierstoff from  
Klüber

Agency of Canada

Stork Werkspoor Canada LTD.

Telex 5821755

Telefon (514) 637 - 4681

1600 Norman Street

Lachine / Quebec / h 8 S 1 a 9

4) Maintenance of the equipment "BLAUER ENZIAN" (see page 11)

The following parts and functions should be maintained daily or while operating or after the following statements. For maintenance the train, you should stop the train in the last curve in front of the station.

4.1) General

Daily tests:

You have to look after all rods connectors for the trains and the safety bars. Further you have to check all wheel housings and safe guards.

Worn out and noncircular wheels have to be renewed.

4.2) The following lubrication points have to be maintained as follows

4.2.1) Track in the reach of the running of the wheels

You should slightly grease the pipe of the track, to have a constant lubricant film.

### 3. Preparation for starting

Before daily operation with passengers some test runs (3 - 5) have to be done to check if the ride and the safety bars work orderly.

See point 4 - maintenance of the ride.

The opening should ensue to the Function specifications of Firma Hch. Baumüller, 8500 Nürnberg.

Before daily operation the oil in the gears has to be warm. This means, during the first 10 - 15 min. you should drive slowly to avoid foaming of the oil.

#### Attention!!

Important advices for the first starting:

The running-, guide- and safety wheels have to be run in slowly.

That means, the train has to be run only half of the maximum speed for 1,5 hours.

Then the speed can be raised to the maximum within 15 minutes.

During this time (1,75 hours) a regular operation with stops and starts should be simulated, as if passengers are carried.

During this time the plastic of the wheels gets its firmness.

In order to avoid the detaching of the plastic at the wheels you have to pay attention to the advice for the first operation, otherwise the wheels could get hot.

If you have to change a single wheel you should keep 1/2 an hour's time to run in..

### Starting

Switch on the key-operated switch "releasing control". Tip the button "cancel breakdown" for a moment. Unlock the mushroom-type button "emergency stop". The lamp "emergency off" extinguishes. Operate the tail-end drives by switch S 4 "auxiliary drives". Only "auxiliary-on" lights up. Breakdowns and emergency stops must always be answered by "cancel breakdown". Now one can start by button S 6 "start". The apparatus rotates at the speed set by the potentiometer "speed-rotate". The signal lamp "operating-driving" lights up. After pushing the push button "stop" the apparatus slows at the value set by the potentiometer "retarding force". The lamp "operating braking" lights up. The drive motors are switched off, if the "rotor-voltage" is smaller than 40 V. A renewed start is not possible during the braking process. When "emergency stop" is pushed during the ride, the train slows down at an internally set maximum current value. After the key-operated switch "releasing-control" has been turned off, the drive of the apparatus is cut off the electrical power supply. This is meant for eventual emergency cut-off in case of breakdowns.

4.2.4) All wheels with antifriction bearing

About every three months you should lubricate the bearings with normal ball bearing fat.

4.2.5) Gear box

Maintenance and spare parts according to enclosed informations

V 200 EN 9.78, Drawing 5161914,

Spare parts list 1 E 5052283 of Flender Company, Bocholt

4.2.6) Safetybars and compressor

Air filter of the compressor it to be greased slightly every month with a non-resinous oil.

The safety bars must be greased monthly, if grease nipples are existing, otherwise lubricate slightly.

4.2.7) All cables, the track and other electric parts are to be tested every 3.- 4 days and defect parts have to be changed immediately.

While working on the electric parts, turn off the main switch

4.2.8) Brushholder

Are to be tested daily and defect or wornout brushes are to be changed immediatly.

The brushes should be turned absolutely after approx. 20 operating days to compensate the wearing.

- 4.2.9. Spare parts for electric  
according to E - part list  
control box drawing no 215 b,  
Baumüller company, Nürnberg

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- Adjustment:
1. Tighten crownnut M 36.
  2. Turn down crownnut M 36 about 1/4 turn to the next split-in hole.
  3. Fit the split in into the hole and secure it.
  4. Fix the normal nut and secure it.
  5. WHEEL ASSEMBLY HAS TO BE TURNED BY HAND !!!!!

bushing made of red brass  
Control the clearance and renew  
it necessary!

Sliding washers inside are red brass  $\varnothing$  65x5 mm  
Control the wear eventually renew them.

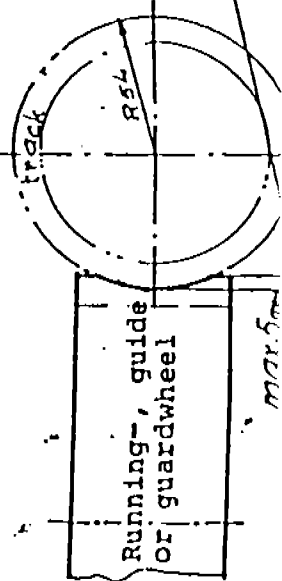
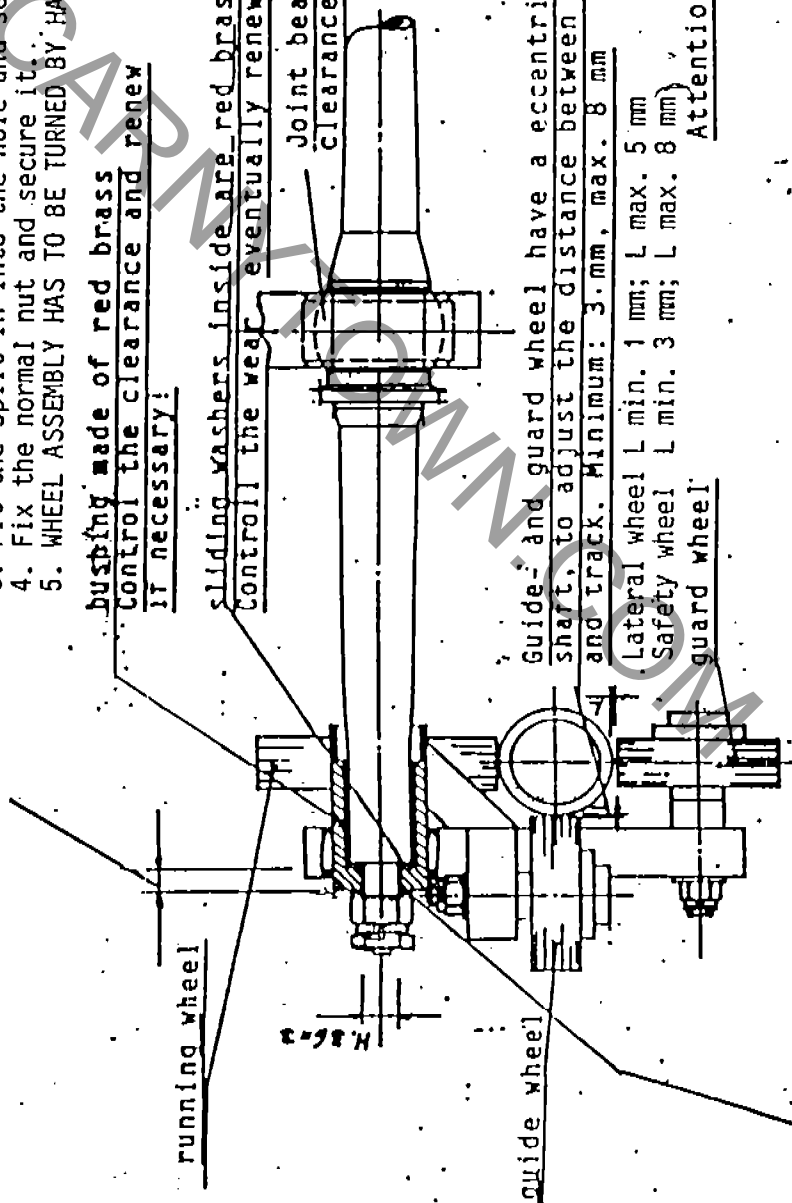
Joint bearing GEH 90, control bearing  
clearance!

Guide- and guard wheel have a eccentric  
shaft, to adjust the distance between wheel  
and track. Minimum: 3 mm, max. 8 mm

Lateral wheel L min. 1 mm; L max. 5 mm  
Safety wheel L min. 3 mm; L max. 8 mm  
guard wheel.

Attention: To control different functions  
it is necessary to unload the  
axles, through lifting up the  
whole car. (with a hydraulic jack)  
In this position it's important to control also  
all bearings of the wheels because of smooth running

Sliding washers outside are red brass  $\varnothing$  60x5 mm  
Control the wear, eventually renew them.



ATTENTION!  
The wear out of running-,  
guide- and guardwheel should  
never be more as 5 mm!

Pos.	Stück	Tafel-Nr.	Bezeichnung
<b>MACK</b>			
Krupp- u. Fahrzeugbau Westdeut			
Material	Jahr	Datum	Name
	1984	25.7	B
Autoref:			"Blue gentian"
Blatt-Nr.			

GmbH + Co.

Control of Undercarriage

ERSATZTEILE

SPARE PARTS

=====

ES DÜRFEN AUSSCHLIESSLICH NUR ORIGINALERSATZ-  
TEILE DER FIRMA MACK VERWENDET WERDEN.

BEI NICHTVERWENDUNG VON ORIGINALERSATZTEILEN  
ERLISCHT JEDLICHER GEWÄHRLEISTUNGSANSPRUCH.

ÄNDERUNGEN VORBEHALTEN

ONLY ORIGINAL SPARE PARTS OF THE MACK LTD.  
HAVE TO BE USED.

ALL GUARANTY WILL EXPIRE BY NOT USING THE  
ORIGINAL SPARE PARTS.

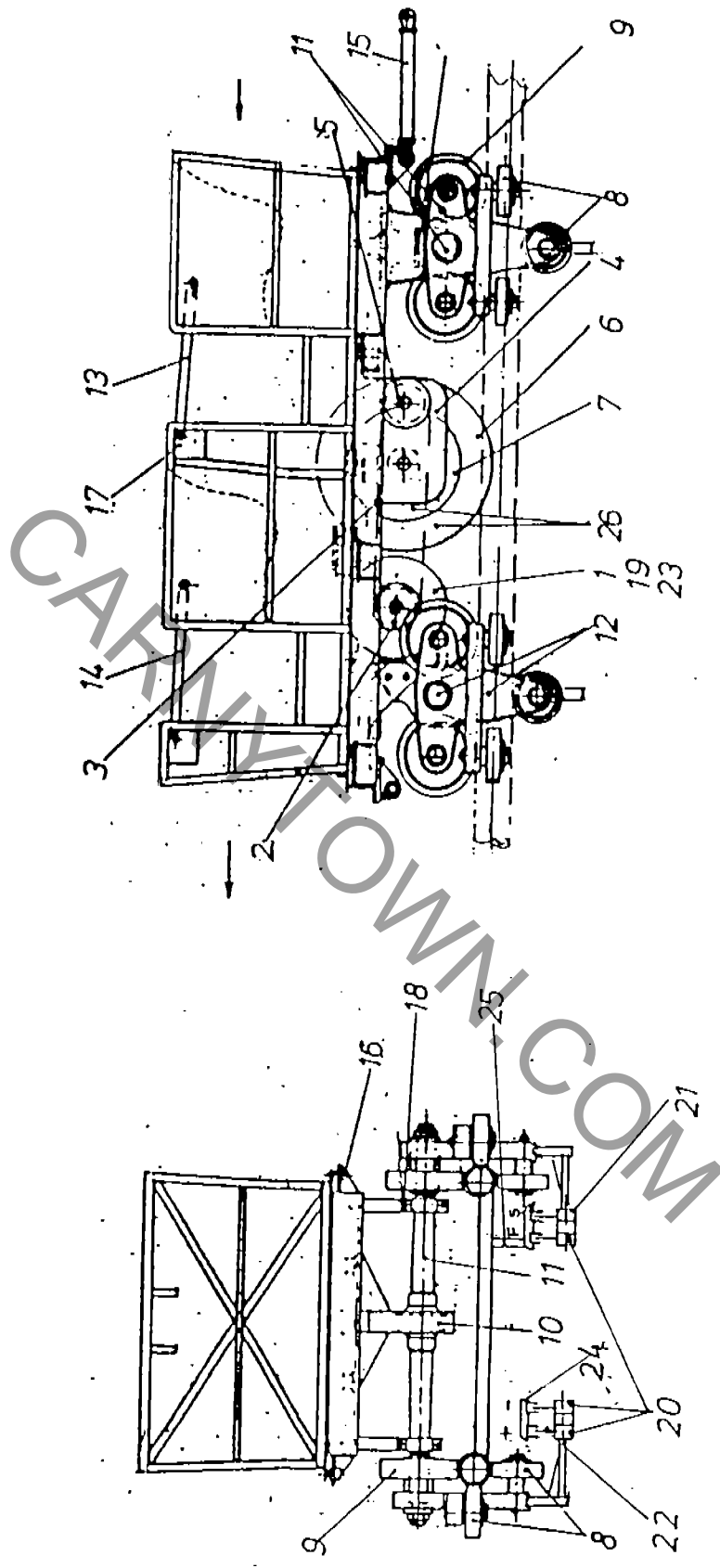
SUBJECT TO CHANGE

I Ersatzteile für Fahrzeug  
Spare parts for vehicle 782 - E 400

Pos. Part No	E.-teil Nr. Stock No	Bezeichnung Designation
1	E 100	Antriebsmotor drive motor
2	E 140	Keilriemenscheibe v-belt - pulley
3	E 110	Keilriemen v-belts
4	E 120	Getriebe gear box
5	E 130	Keilriemenscheibe v-belt-pulley
6	E 320	Reifen tyre
7	E 330	Felge rim
8	782-E 350	Seiten-bzw. Führungsrolle lateral + guard roller
9	782 E 340	Laufgrad running wheel
10	E 200	Achslager axle bearing
11	E 300	Hinterachse komplett rear axle
12	E 290	Vorderachse komplett front axle
13	E 260	Sicherheitsbügel hinten safety bar rear
14	E 261	Sicherheitsbügel vorn safety bar front
15	E 230	Zugstange connector for trains
16	E 265	Gummilager rubber hanger
17	E 250	Hubmagnet lifting magnet
18	E 800	Messinggleiter brass-slipper
19	E 150	Kohlen für Motor brushes for mot.
20	E 160	Stromabnehmer +, -, Feld sliding contact

21	E 170	Stromabnehmer <i>Schutzleiter</i> sliding contact
22	E 180	Schleifkohle brush
23	E 190	Anker für Motor motorarmature
24	E 270	Stromschiene + Halter power track w+holder
25	E 280	Einspeisung feeder

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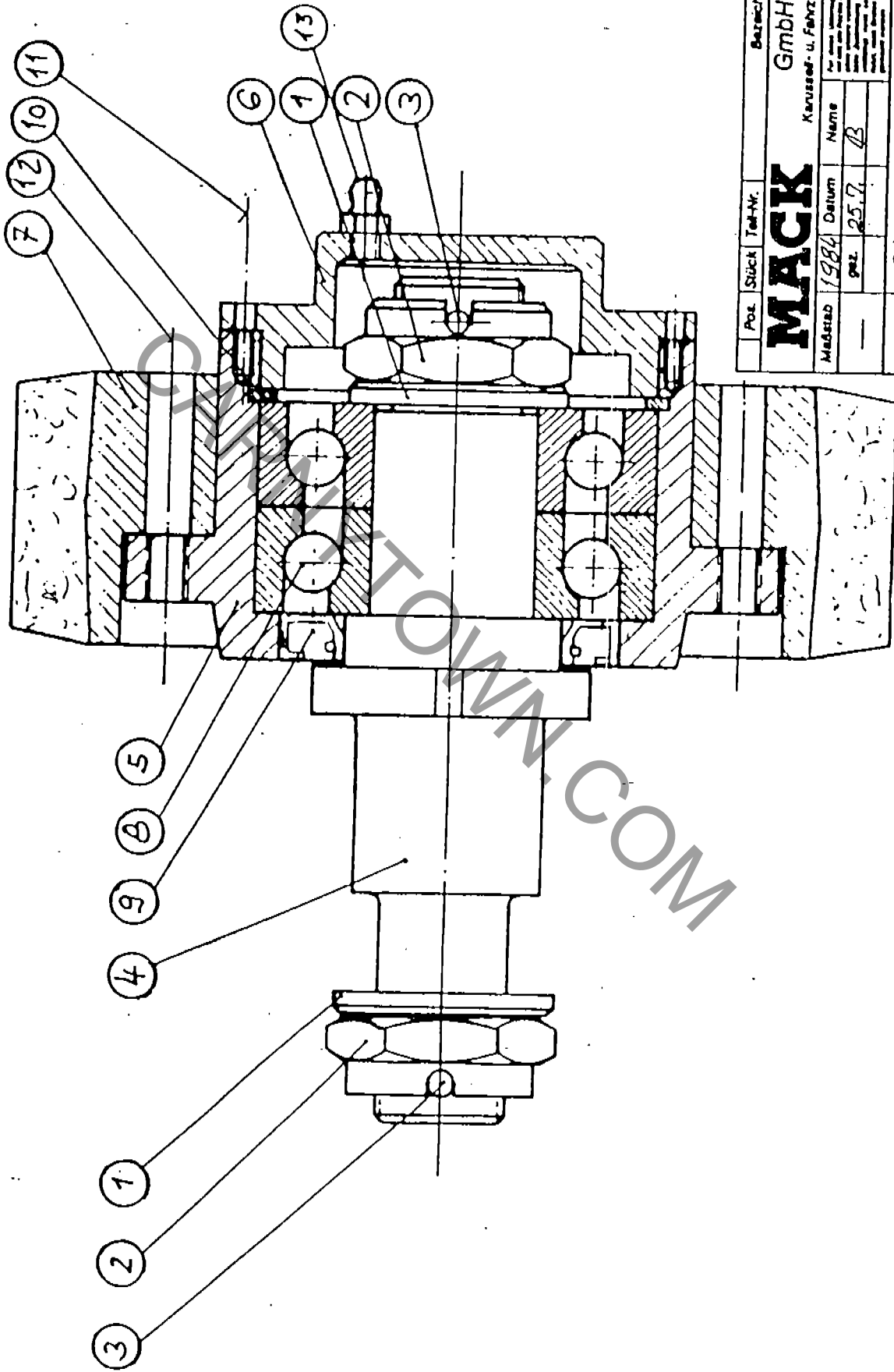


Pos.	Stück	Teil-Nr.	Bezeichnung
<b>MACK</b>			
Karlshof - u. Fahrzeugbau Makoki			
Maschinen-Nr.	19884	Datum	
—	—	25.7.	β
Auftrag:	Blauer Enzian		
Fahrzeug-Nr.	72		

"Blue gentian"

II Ersatzteile für Seiten-u.Führungsrolle 782-F350  
Spare parts for lateral and guard roller

Pos. Part No.	E.teil Nr. Stock No.	Bezeichnung Designation
1	E 365	Scheibe washer
2	E 364	Kronenmutter castle nut
3	E 363	Splint split in
4	E 352-02	Achse Führungsrolle axis guide roller
4	E 352-01	Achse Seitenrolle axis lateral roller
5	E 362	Näbe hub
6	E 361	Lagerdeckel cover
7	E 350	Laufgrad komplett wheel complet
8	E 210	Lager bearing
9	E 357	Simmerring oil seal ring
10	E 356	Sicherungsring snap ring
11	E 355	Sechskantschraube bolt
12	E 354	Sechskantschraube bolt
13	E 351	Schmiernippel grease nipple



Pos.	Stück	Teil-Nr.	Bezeichnung
<b>MACK</b> GmbH + Co.			
Karlsrufer- u. Fahrzeugbau Waidlurch			
Maßstab	1:20	Datum	Name
	gez.	25.7.	B
Blatt Nr.			II
Auftrag: Blauer Enzian			
Seiten- u. Führungsrolle			782
Lateral and guard roller			E350

"Blue gentian"

III Ersatzteile für Laufrad  
Spare parts for running wheel

782 - E 340

Pos. Part No.	E.teil Nr. Stock No.	Bezeichnung Designation
1	E 344	Achse axis
2	E 342	Nabe hub
3	E 341	Lagerdeckel cover
4	E 340	Laufrad komplett wheel complete
5	E 220	Lager bearing
6	E 343	Simmerring oil seal ring
7	E 345	Sicherungsring snap ring
8	E 355	Sechskantschraube hex. bolt
9	E 365	Scheibe washer
10	E 364	Kronenmutter castle nut
11	E 363	Splint split in
12	E 346	Radbolzen bolt
13	E 347	Kugelbundmutter nut
14	E 351	Schmiernippel grease nipple