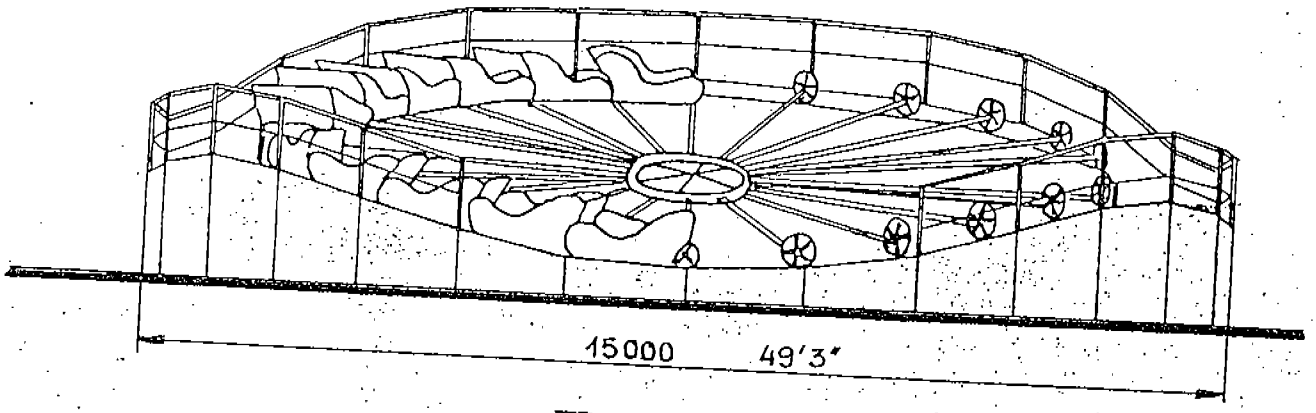
USAd 4581
Rock N Roll/music cyclos
Little Joe mfg.

HIMALAYA

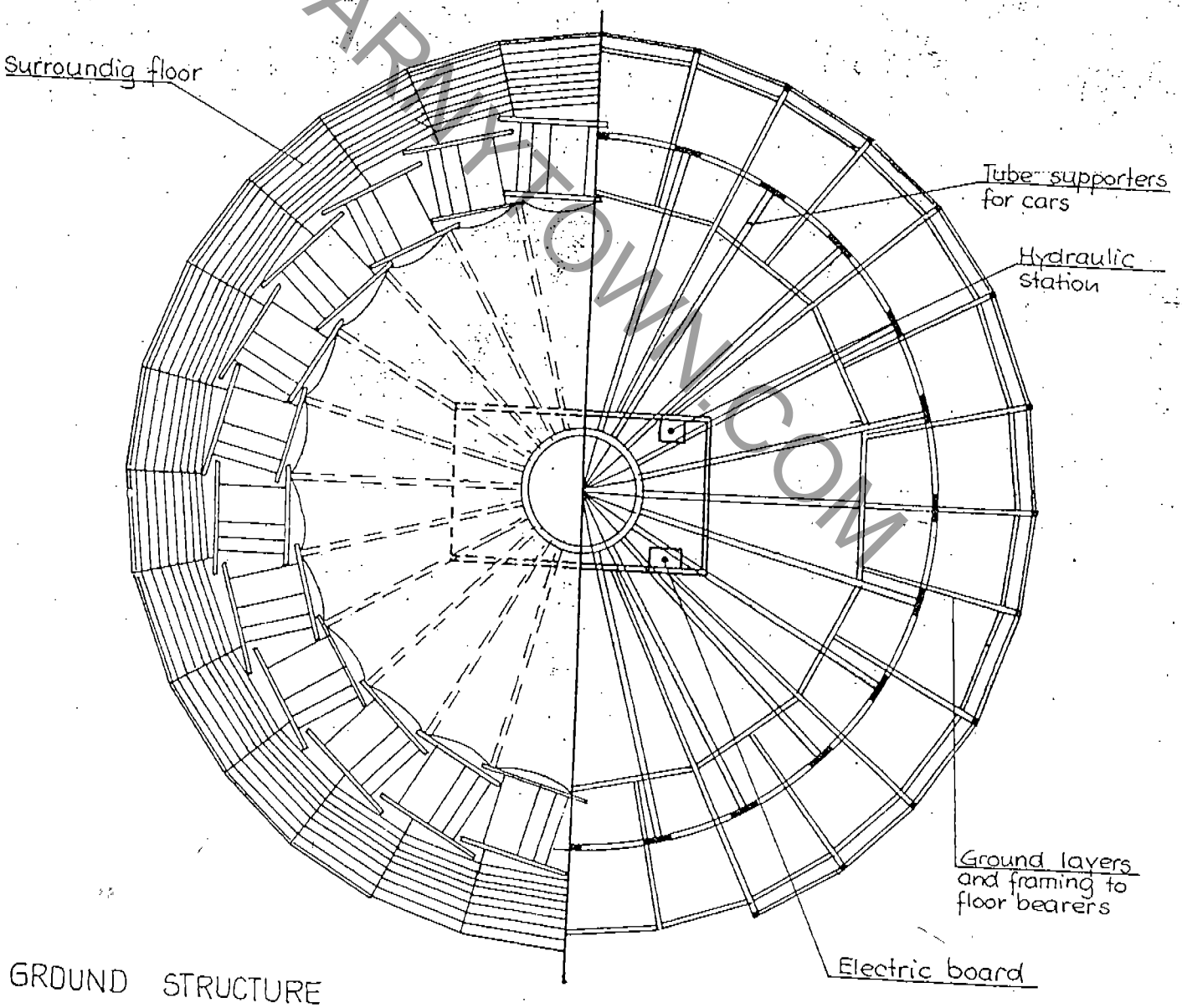
DESCRIPTION and MAINTENANCE

SPECIFICATIONS:

Capacity:		: 24 cars each 3 persons
		: 72 seats
Speed :		: 10 Rpm
		: 22 Km/h.
Voltage:		: 208 V - 3phases - 60 Hz
Power:		: 25 KW
Weight:	For Plain Version	: 21 tons
Cubic:		: 32 m^3 = 1130 cub feet



FRONT VIEW



GROUND STRUCTURE

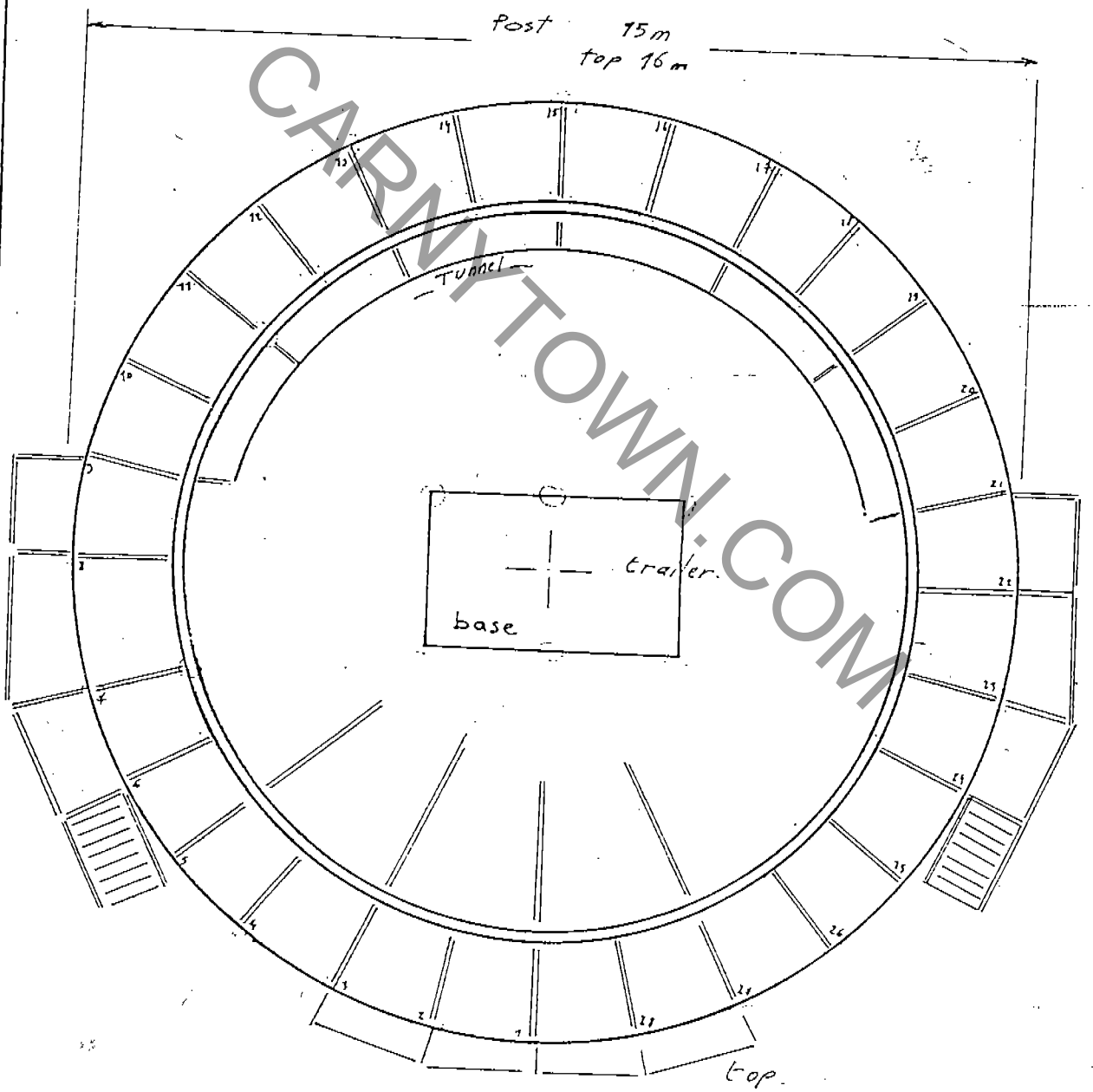
Gustan Reverchon

Constructeurs
77. Samois /s/ Seine
France

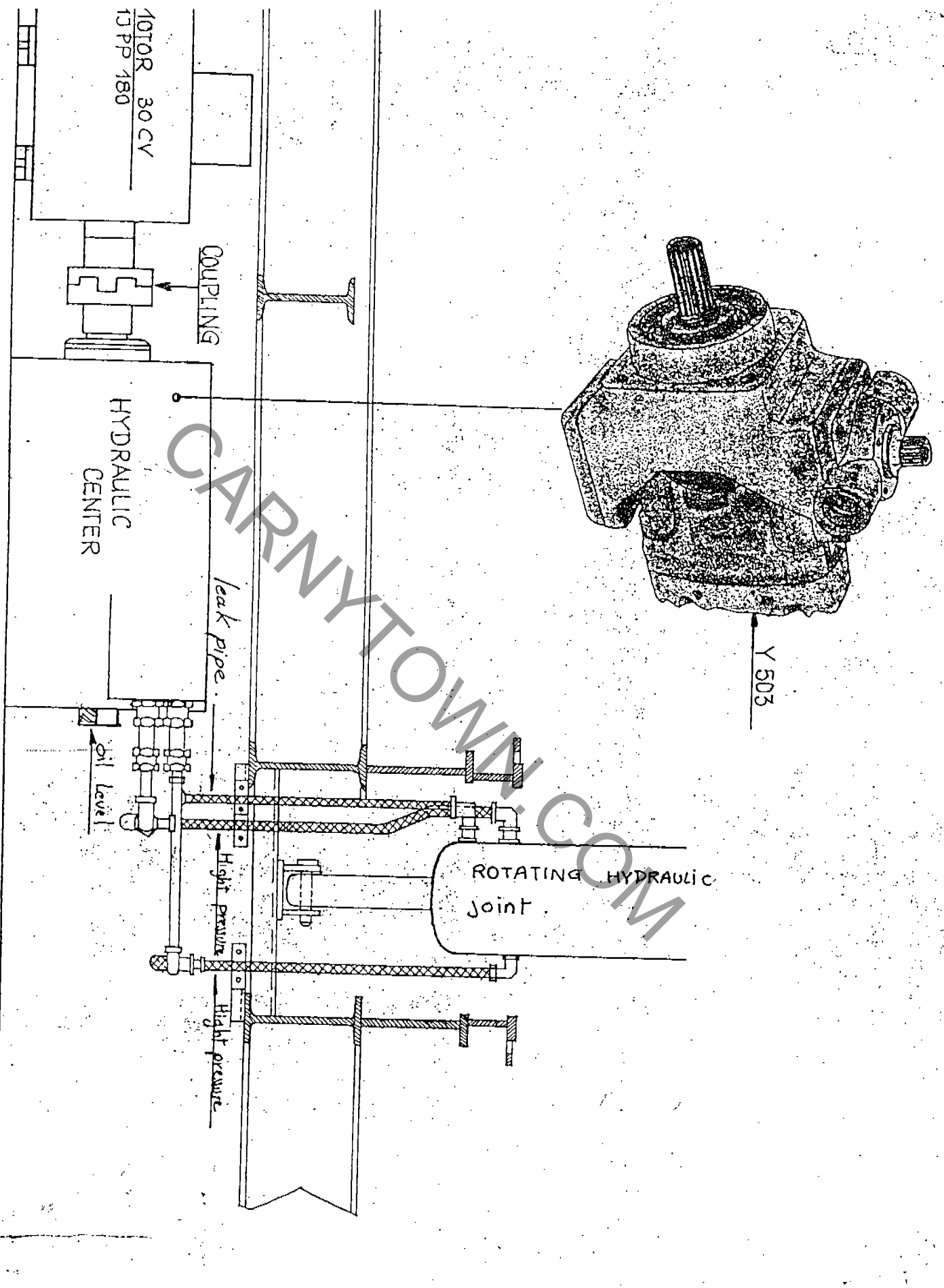
Cde.:
Page:
Poste:

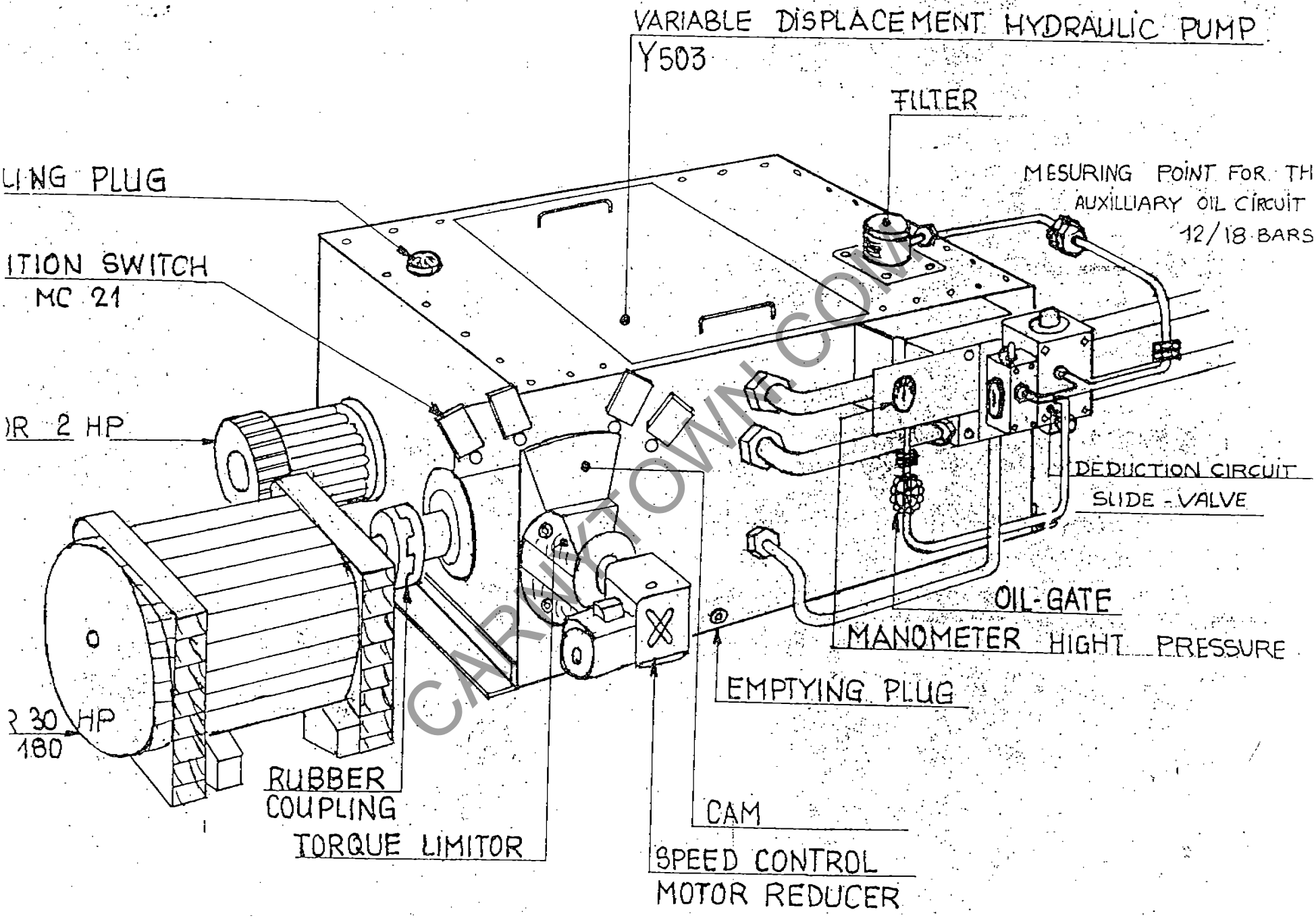
HIMALAYA.

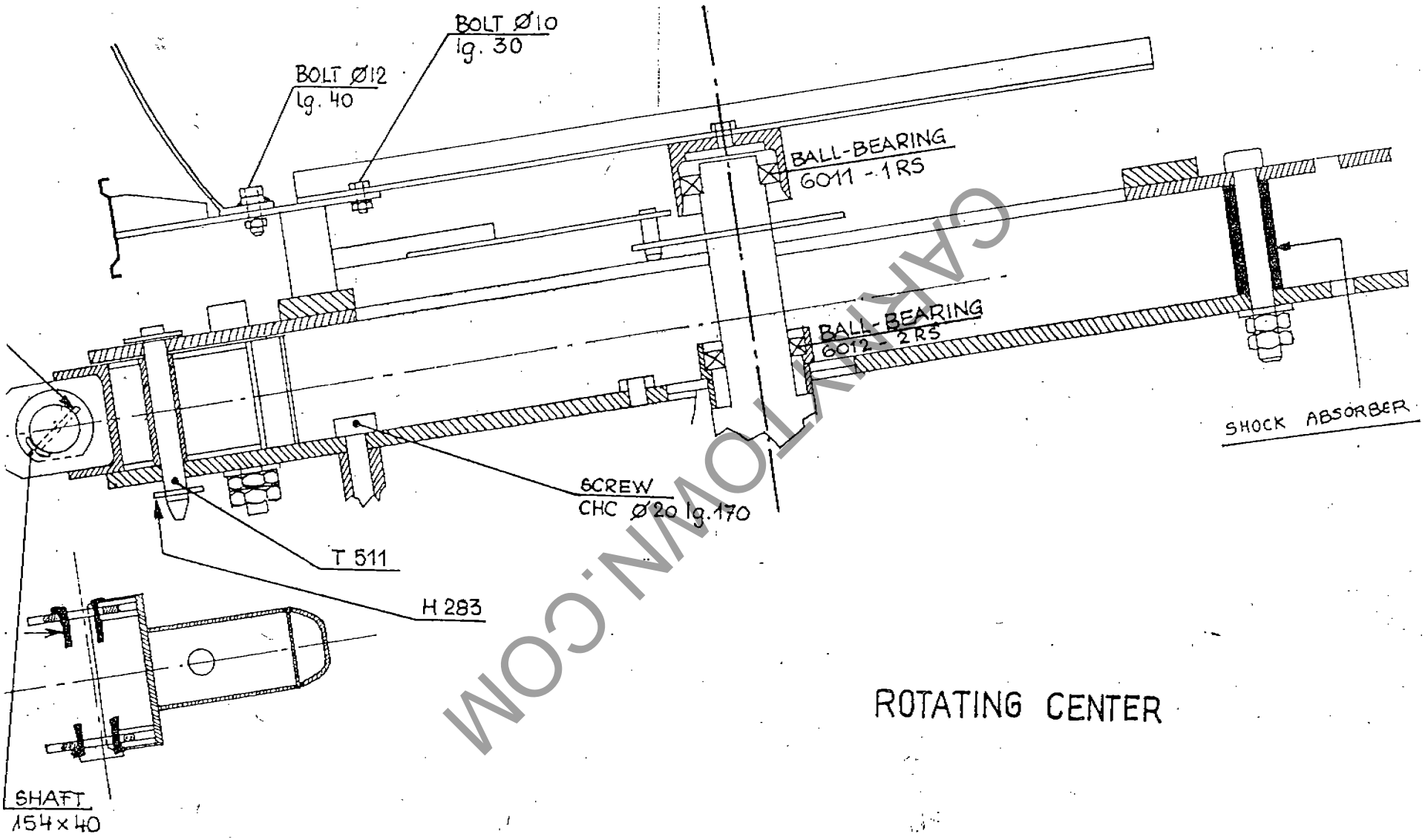
Floor-space.



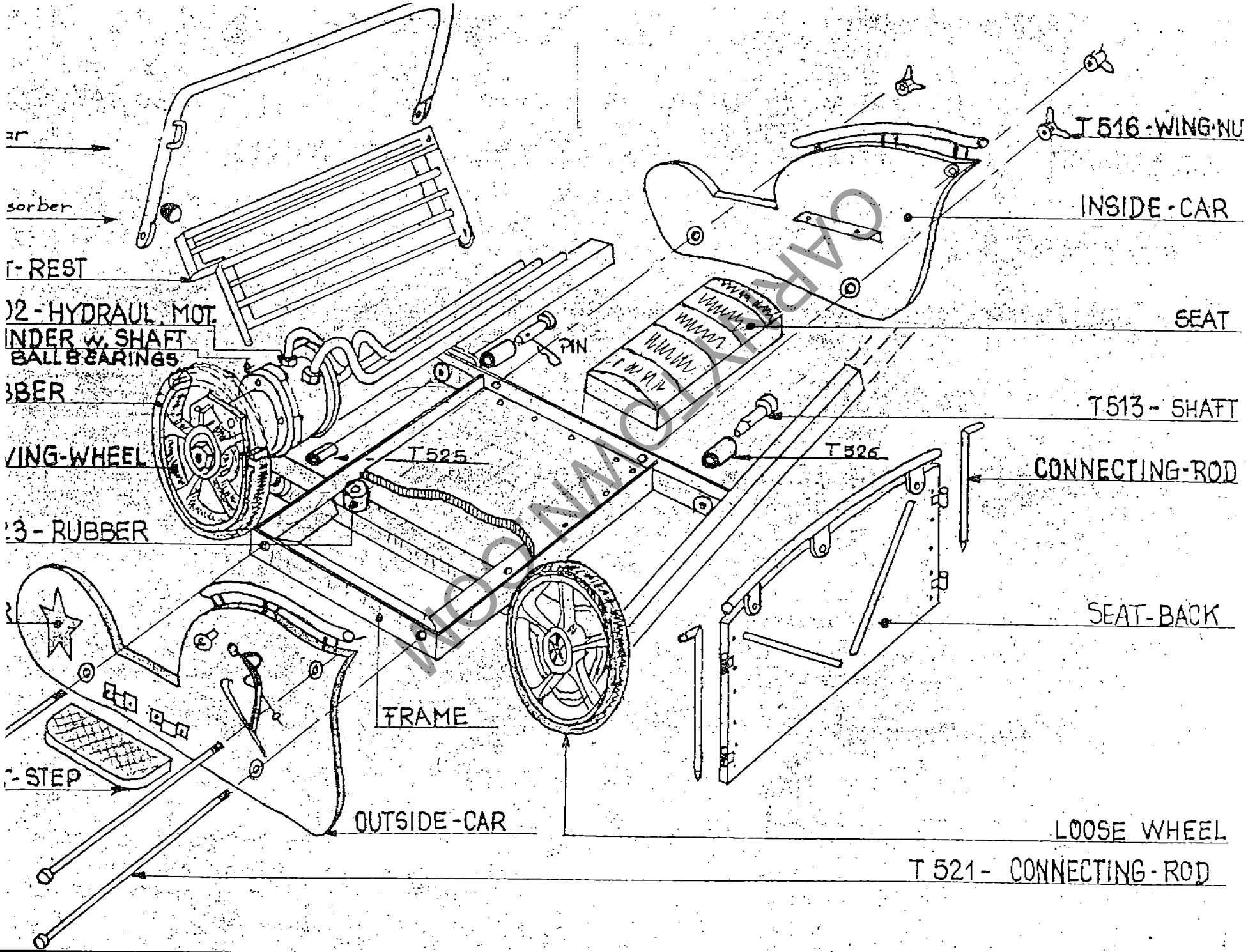
clamping-points







ROTATING CENTER


ar
sorber
T-REST
02-HYDRAUL. MOT.
INDER w. SHAFT
BALL BEARINGS.
BBER
VING-WHEEL
23-RUBBER
T-STEP
PIN
T525
T526
FRAME
OUTSIDE-CAR
T516-WING-NU
INSIDE-CAR
SEAT
T513- SHAFT
CONNECTING-ROD
SEAT-BACK
LOOSE WHEEL
T521- CONNECTING-ROD

Hydraulic specifications.

Oil : use "Hydrelf 37"
or one oil having 3,5 ⟷ 4,5 °Engler rates at 50 °C (122 °F) / change it 1st at 500h and after, each 3000 h.

Filter : clean it once a month.

Oil level : watch it always, on the oil tank side indicator.
keep it at the indicated value.

Flexible pipe : must be maintened clean when removed.

Hydraulic circuit.

In three parts.

1) A power circuit or main circuit including:
   - Main pump.
   - 4 hydraulic wheel engine.
   - 2 pressure limit values (hight value)

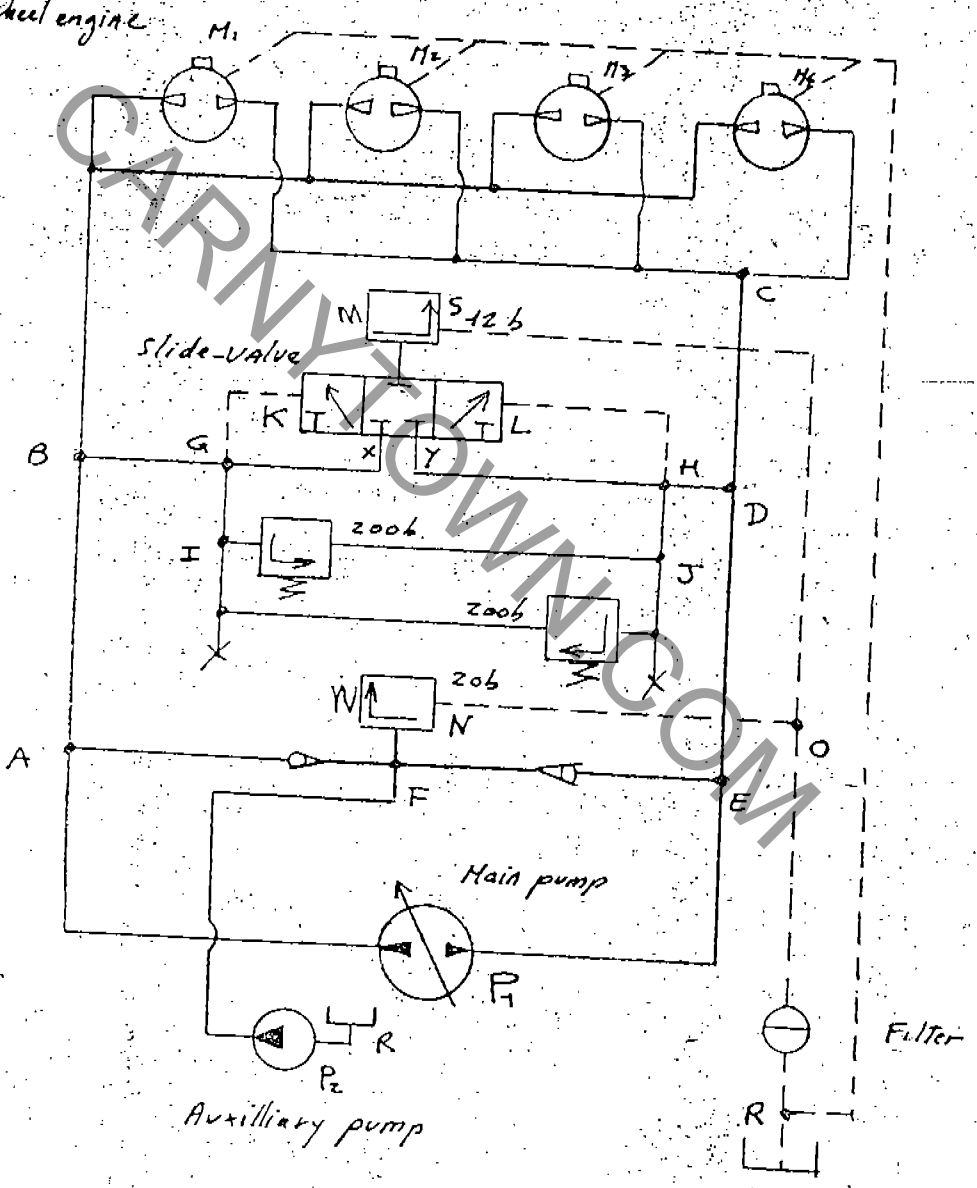
2) An auxilliary circuit including.
   - Auxilliary pump.
   - 2 clapets
   - 1 pressure limit valve (low value)

3) A deduction circuit including
   - a slide value (self working)

- the power circuit makes the Hight pressure required.
- the auxilliary circuit is used to maintain a necessary low level pressure for the best pump and engine working condition.
- A deduction circuit required to remove automatically the working oil.

See the Hydraulic circuit diagram on next page.

HYDRAULIC DIAGRAM.

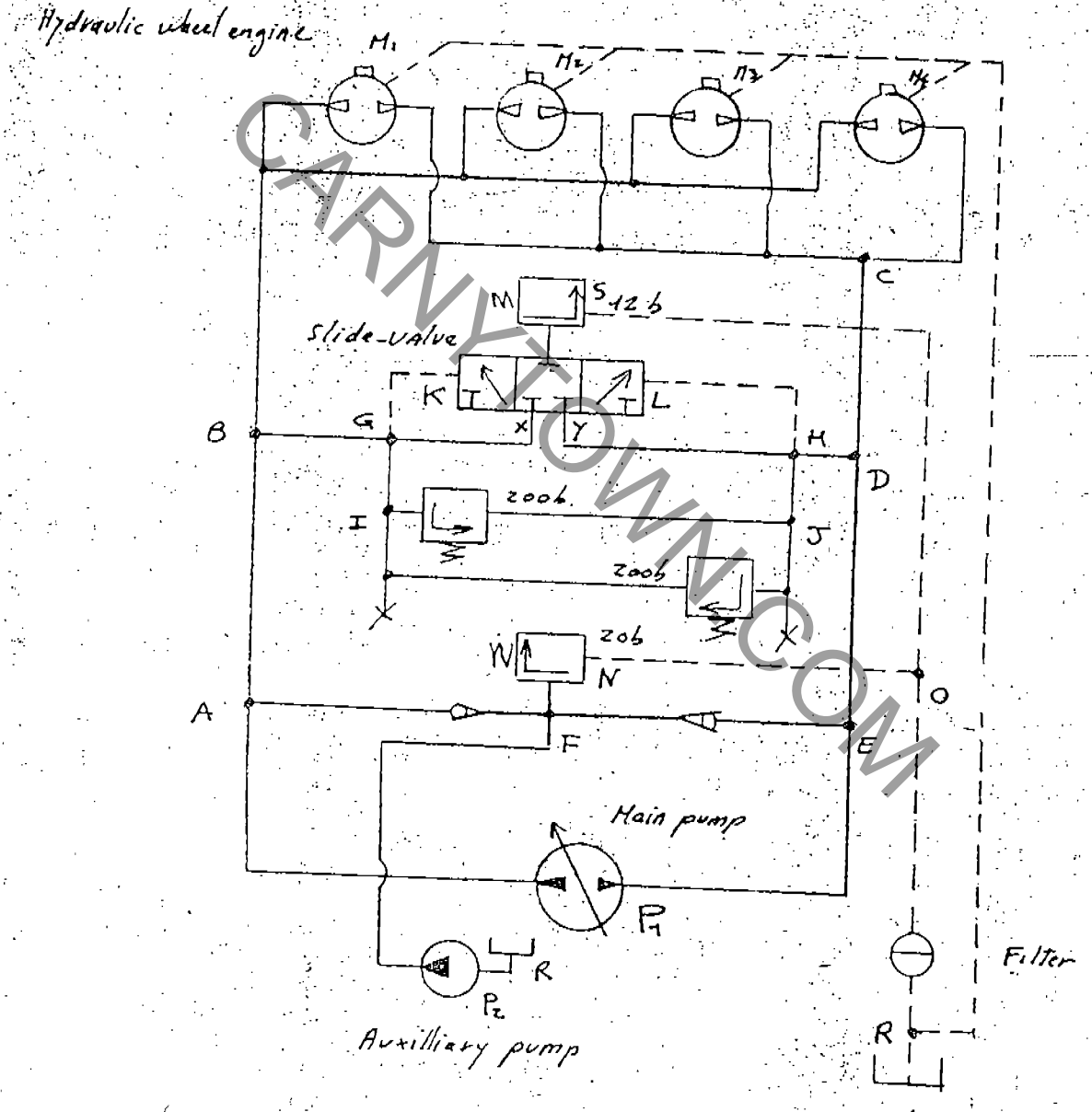


1) Main circuit ... P_1, A, B, M_1 M_2 M_3 M_4, C, D, E P_1

2) Auxilliary circuit ... R, P_2 F, E, P_1

3) deduction circuit ... FNOR and (BGXLHD or DHYKGB)

HYDRAULIC DIAGRAM.



1) Main circuit : P_1, A, B, M_1 M_2 M_3 M_4, C, D, E P_1

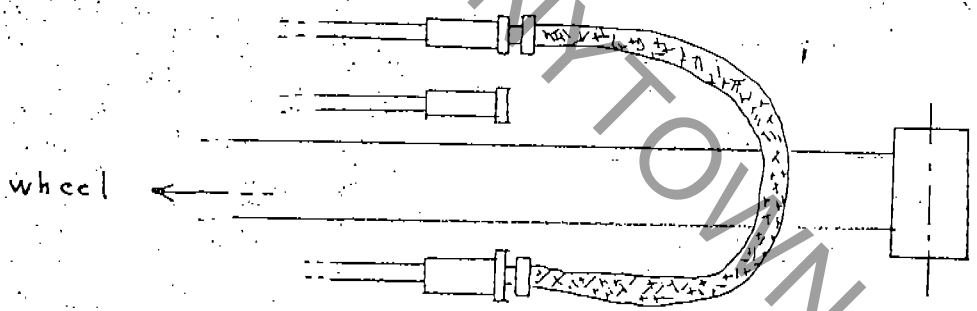
2) Auxilliary circuit R, P_2 F, E, P_1

3) deduction circuit : FNOR and (BGXLHD or DHYKGB)

Engine break down.

— Isolate the failing wheel hydraulic engine from others

shut its hydraulic circuit on itself, joining input and output. with a hose



— To make the manual rotation easier putting the cars on, use the same mean on each engine circuit.

WARNING

① When the ride works with 3 engines instead of the 4 required, watch the speed. Don't let it to reach its Top. value. Use the slow accelerator position.

② Never try to work without the auxilliary pump on. (green light on)

HIMALAYA

Electric instructions

DESCRIPTION

The electric installation consists of :

- an electric board
- a remote control board
- a hydraulic station.

The electric board contains mainly

- an isolating switch
- a differential circuit breaker assuming people's protection (300 mA)
- a change over switch
- the others apparatus for the electric engines automatic command; relays, contactors, ect..

The remote control board wears all the usefull parts for signalisations and command.

The Hydraulic station has

- one main pump electric motor (30 HP)
- one auxilliary pump motor (2 HP)
- one Servo-motor for regulation.

The HIMALAYA must be supplied with 220 V 3 phases, without neutral conductor.

From now, on using the piloting level switch (31) you can move the Himalaya ride forward or backward !

Releasing the level, the Servo-motor keeps the Himalaya turning at the speed it has reached.

pushing the level the speed will increase to 10 RPM (Speed allowed through position switches 23 and 26)

Red or yellow light on.

there are also 2 bolts which limit the cam movement according to this speed.

To reverse the rotation, use the level

To stop the Himalaya you can either use the level reversing it and releasing it when the light orange is on, or it's easier to push the red button down (33) the Himalaya will stop itself.

the red selector switch gives you the possibility to choice either a 40" accelerating time or 20" as required.

Failure voltage:

- wait until ride comes to complete stop and only then
- push number 42 (on the right).
- wait the orange light
- start the pumps

Maintenance of the slewing ring

the slewing ring does not need any maintenance, others than a periodic Lubrication (once a month) with a good bearing grease (Mobilux Grease N:2)

- there is 6 Lubricators, give them ten shots.

Hydraulic rotating joint Lubricate once a month with a Poclain grease EP or Texaco Molytex grease ?. (3 Lubricators) fill them up.

wheels should be relubricated when they are mounted (bearing grease)

beams relubricate the pins used to mount the beams once a month for a settled ride or every mounting.

Eledric Engine relubricate once a year.

MAINTENANCE

the Following operations must be done :

- inspection of cars :
  - Safety bars
  - WING-NUTS T516
  - SHAFT and pins T513 - T525
  - shock absorber T523
  - Hydraulic motor T502
- inspection of beams.
  - pins T511 at the begining of each beam.
- inspection of hydraulic station :
  - check the oil level
  - watch any oil leak
  - watch the pressure on manometer

EVERY DAY.

- General inspection of bolts and pipes

EVERY 15 DAYS

- General inspection of weldings
- Lubrification of the slewing ring with a good bearing grease.
- Lubrification of the 6 Lubricators (ten shots)
- Lubrification of the 3 Lubricators on the rotating joint with: POCLAIN GREASE EP OR TEXACO MOLYTEX N°2.
- wheels should be relubricated when they are mounted or every month.
- relubrification of the pins T511 when settled or every month.
- watch the oil level in the speed control motor reducer.

EVERY MONTH.

- Relubrication of the electric engine
- Complete inspection of bolts, welding, pipes, motors, seals

ONCE A YEAR.

Characteristics

① Generalities

- Number of cars - Nombre de voit. : 24
- Number of seats - Nombre de places : 72
- Rotation p. minute - Nombre tours/min : 10
- Speed - - Vitesse d. voit. : ca. 22 Km/h.

② Base of calculation "TEST"

- Weight p. person - poids p. pers. : 270 pds. is 122 Kg
- Weight of 3 persons (one car) p. voit. : 810 pds. is 367 kg
- Weight of 72 persons (full load) (pleine charge) : 19440 pds is 8806 kg
- Starting time - temps d'acceleration : 33 sec.
- Max. speed - vitesse maximum : 10 Rpm
- Braking time - temps de décélération : 33 sec.
- Time of fatigue of the metal (temps de fatigue de la matiere) : minimum
- Rate of work of the material A37 for the testing period following the norms. (Taux de travail de la matiere A.37 pour période d'essais suivant normes) : 18 kg/mm² ≃ 49%
- Hydraulic pressure corresponding by test with full load, uniformly distributed. (pression du circuit hydraulique: correspondant aux essai pleine charge uniformément répartie) : < 200 b
- Highest authorized pressure (pression de pointe admissible) : 350 b
- Authorized pressure by continual working. (Pression continue admissible) : 315 b

③ Normal working

- Weight p. person - poid par personne : 75 - 100 kg
- Starting time - temps d'accélération : 17 sec.
- Highest speed - vitesse maximum : 10 Rpm
- Braking time - temps de décélération : 17 sec.
- Time of fatigue of the metal (temps de fatigue de la matière) : 20 000 hours
- Rate of work corresponding (taux de travail correspondant) : 14 kg/mm² ≃ 38%
- Pressure of the hydraulic circuit (Pression du circuit hydraulique) : < 260 b

Gustav Reverchon

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Page: 4
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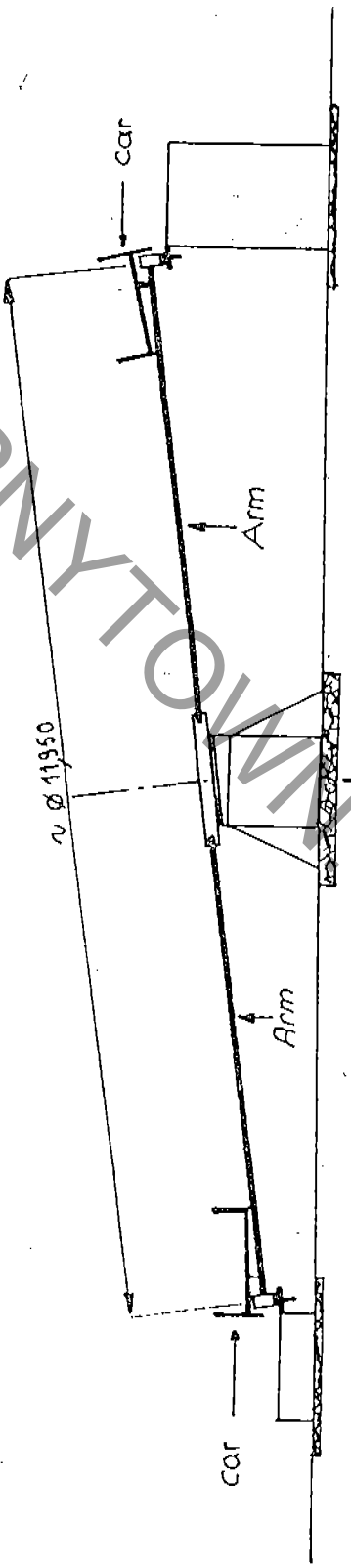


Testing characteristics
(caracteristiques d'essai)

Ride in stop-position
(manege a l'arrêt)

Paying load
(charge payante)

1 person - 270 livres is 270 · 0,453 = 122,31 kg

Weight of one unloaded car : 130 kg
(Poids d'une voiture vide)

3 person = 122,31 · 3 = 366,93 kg is 367 kg

Weight of one loaded car : 367 + 130 = 497 kg
(Poids d'une voiture chargée)

Ride in running position
(Manege tournant)

Régime $n = 10$ rpm

$\omega = \frac{\pi n}{30} = 1,05 \quad \omega^2 = 1,1$

Centrifugal power

$c = m \cdot \omega^2 \cdot r$

Coefficient of centrifugal acceleration of the cars
(Coeff. d'accélération centrifuge des voitures)

$\frac{1}{9,81} \cdot 1,1 \cdot 5,566 = \boxed{0,62}$

Cross section
(section transversale)

voir fig. 8 and 9 page 6

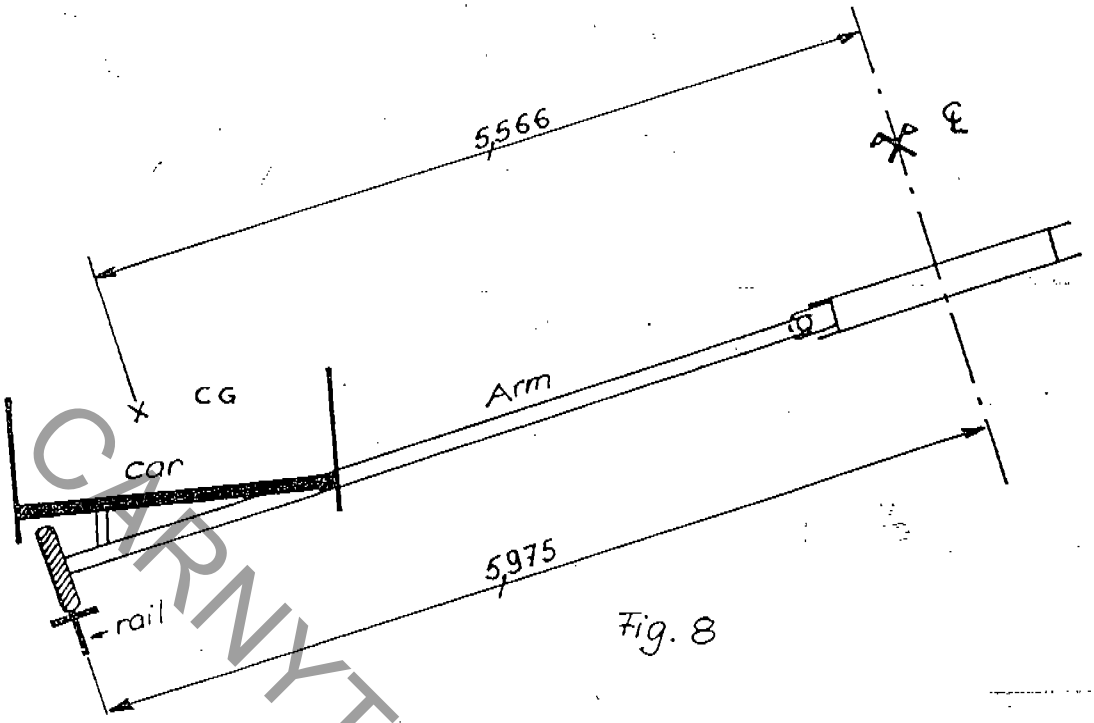


Fig. 8

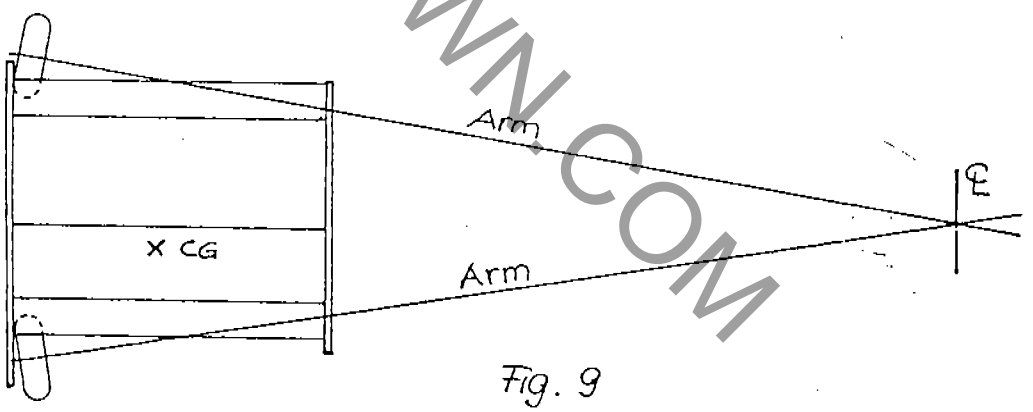


Fig. 9

Equalizing of the force on the frames of the cars
(Repartition des efforts sur chassis de voitures)

$R_A = \frac{497 \cdot 325}{925} = 175\,kg$ voir Fig. 1 page 8

$R_B = 497 - 175 = 322\,kg$

$R_{A1} = \frac{175 \cdot 150}{750} = 35\,kg$ voir Fig. 2 page 8

$R_{A2} = 175 - 35 = 140\,kg$

$R_{B1} = \frac{322 \cdot 150}{750} = 64\,kg$

$R_{B2} = 322 - 64 = 258\,kg$

Section C (Profil C) voir Fig. 3 page 8

L 60·40·6 St 37

$F = 5{,}68 \qquad W = 5{,}03$

$M = \frac{64 \cdot 90{,}5 \cdot 25{,}5}{116} = 1273\,cmkg$

$T = \frac{64 \cdot 90{,}5}{116} = 50kg$

$\sigma T = \frac{1}{2}\left[\frac{1273}{5{,}03} + \sqrt{\left(\frac{1273}{5{,}03}\right)^2 + 4\left(\frac{50}{5{,}68}\right)^2}\right] = 253\,kg/cm^2 \simeq 7\%$

Fig. 1

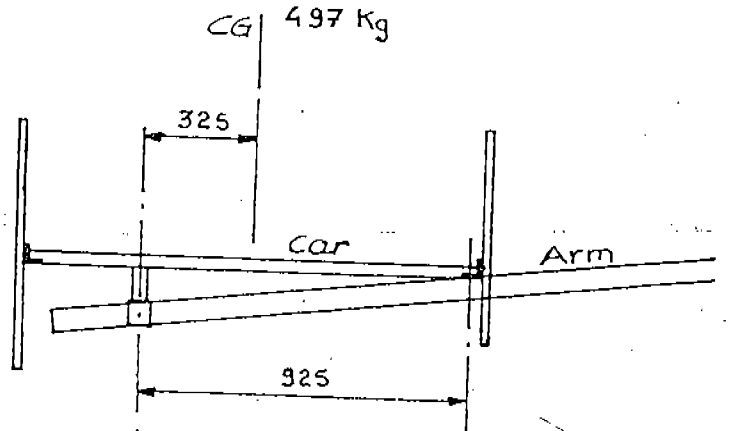


Fig. 2

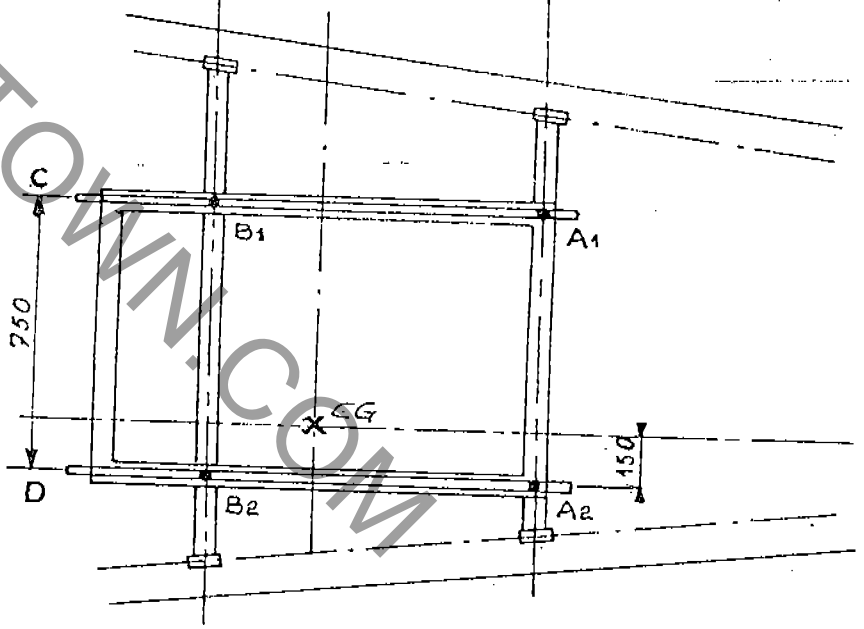
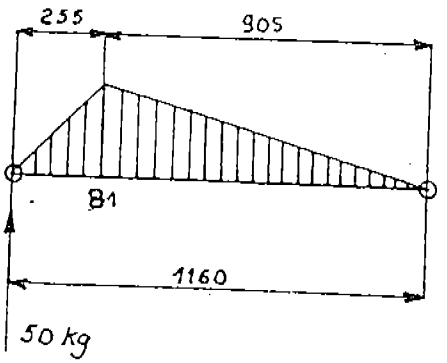


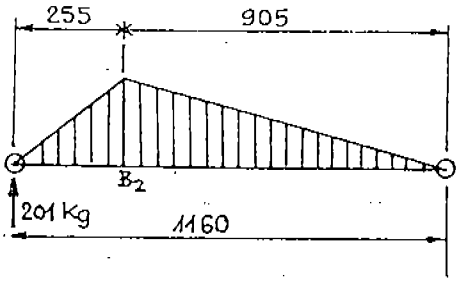
Fig. 3



Section D L 60·40·6 St 37
F = 5,68 W = 5,03

$$M = \frac{258 \cdot 90,5 \cdot 25,5}{116} = 5133 \text{ cmkg}$$

$$T = \frac{258 \cdot 90,5}{116} = 201 \text{ kg}$$



$$\Sigma T = \frac{1}{2}\left[\frac{5133}{5,03} + \sqrt{\left(\frac{5133}{5,03}\right)^2 + 4\left(\frac{201}{5,68}\right)^2}\right] = 1022 \text{ kg/cm}^2 \simeq 28\ \%$$

Section A L 60·40·6 St 37
F = 5,68 W = 5,03

Due of A_1

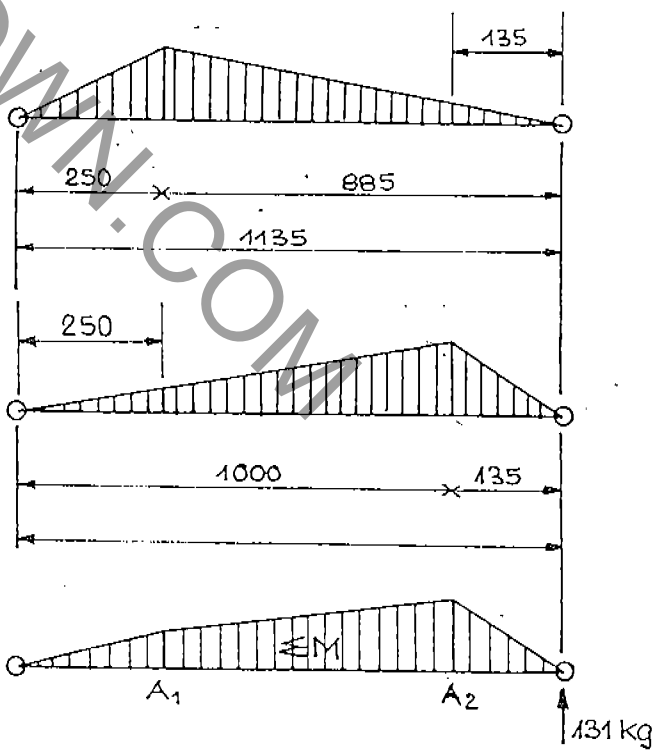
$$M_{A_1} = \frac{35 \times 88,5 \cdot 25}{113,5} = 682 \text{ cmkg}$$

$$M_{A_2} = \frac{682 \cdot 13,5}{88,5} = 104 \text{ cmkg}$$

Due of A_2

$$M_{A_2} = \frac{140 \cdot 100 \cdot 13,5}{113,5} = 1665 \text{ cmkg}$$

$$M_{A_1} = \frac{1665 \cdot 25}{100} = 416 \text{ cmkg}$$



$$\Sigma M_{A_1} = 682 + 416 = 1098 \text{ cmkg}$$

$$\Sigma M_{A_2} = 104 + 1665 = 1769 \text{ cmkg}$$

$$T = \frac{35 \cdot 25 + 140 \cdot 100}{113,5} = 131 \text{ kg}$$

$$\Sigma T = \frac{1}{2}\left[\frac{1769}{5,03} + \sqrt{\left(\frac{1769}{5,03}\right) + 4\left(\frac{131}{5,68}\right)^2}\right] = 353 \text{ kg/cm}^2 \simeq 10\%$$

Section B (Profil B) ▭ 65 · 3,25 ST 37

F - 6,81 W = 10,04

Due in B_1

$$M_{B_1} = \frac{64 \cdot 102,3 \cdot 38}{140,3} = 1773 \text{ cmkg}$$

$$M_{B_2} = \frac{1773 \cdot 25,9}{102,3} = 449 \text{ cmkg}$$

Due in B_2

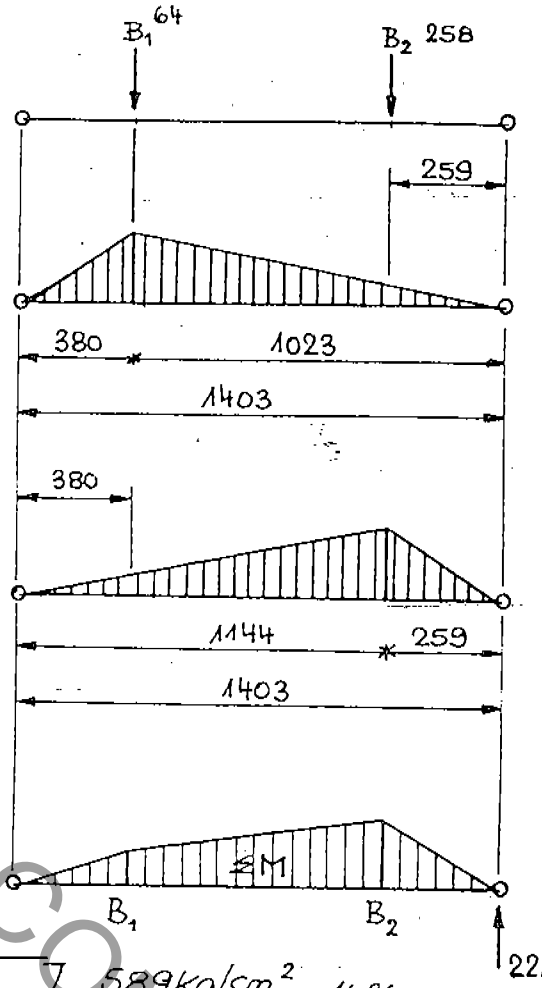
$$M_{B_2} = \frac{258 \cdot 114,4 \cdot 25,9}{140,3} = 5449 \text{ cmkg}$$

$$M_{B_1} = \frac{5449 \cdot 38}{114,4} = 1810 \text{ cmkg}$$

$$\Sigma M_{B_1} = 1773 + 1810 = 3583 \text{ cmkg}$$

$$\Sigma M_{B_2} = 449 \cdot 5449 = 5898 \text{ cmkg}$$

$$T = \frac{64 \cdot 38 + 258 \cdot 114,4}{140,3} = 228 \text{ kg}$$



$$\sigma = \frac{1}{2}\left[\frac{5898}{10,04} + \sqrt{\left(\frac{5898}{10,04}\right)^2 + 4\left(\frac{228}{6,81}\right)^2}\right] = 589 \text{ kg/cm}^2 = 16\%$$

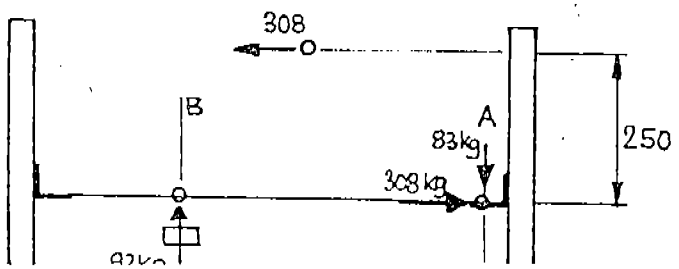
Coefficient of centrifugal acceleration of the cars

$$\frac{1,1 \cdot 5,566}{9,81} = \boxed{0,62}$$

$$C = 497 \cdot 0,62 = 308 \text{ kg}$$

$$\Sigma M = 308 \cdot 25 = 7703 \text{ cmkg}$$

$$R_A = R_B = \frac{7703}{92,5} = 83 \text{ kg}$$



Equalizing of the centrifugal force on the frame of the cars
(Répartition de la force centrifuge sur chassis de voiture)

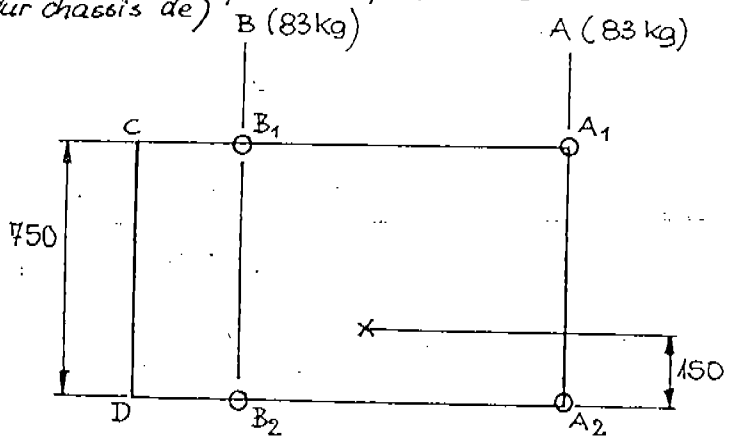
Due of the couple

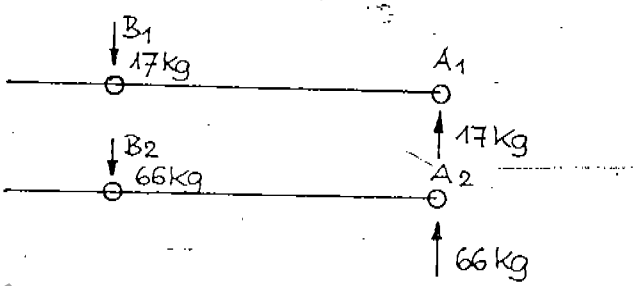
$R_{A_1} = \frac{83 \cdot 150}{750} = 17\ kg$

$R_{A_2} = 83 - 17 = 66\ kg$

$R_{B_1} = R_{A_1}$

$R_{B_2} = R_{A_2}$

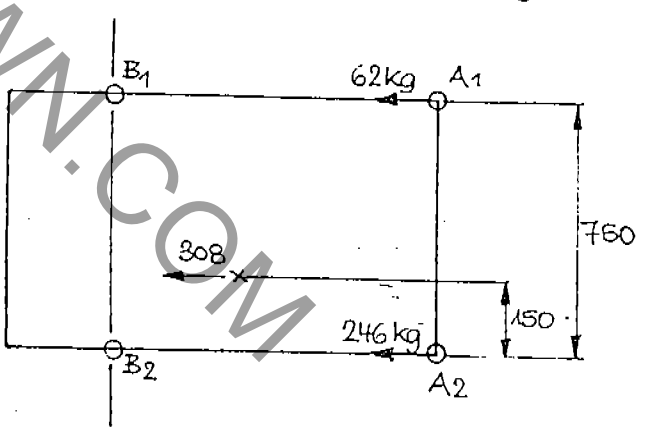




Due of the force
(Dû à la force)

$R_{A_1} = \frac{308 \cdot 150}{750} = 62\ kg$

$R_{A_2} = 308 - 62 = 246\ kg$



Length of the rail ≃ 41m
(Longeur du rail)
V max. 10 Rpm = 41·10 = 410 m/mn.

voir Fig. 4 page 13

Geometry of the lowest point from the rail
(Géométrie d'un creux de rail)

Circ. = $2\pi R$ = 61,58m

$N = \frac{410}{61,58} = 6,66$ t/mn.

$W = \frac{\pi N}{30} = 0,7$

Curve of the wheel hub
(Courbe d'écrite par l'axe d'une roue)

voir Fig. 5 page 13

9,800 - 0,246 = 9,554

Curve of the CG of one car
(Courbe decrit par la CG d'une voiture)

$R = \frac{4,816}{5,225} \cdot 9,554 = 8,8$m

voir Fig. 6 et 7 page 13

$C = m W^2 R = \frac{497}{9,81} \cdot 0,7^2 \cdot 8,8 = 218,5$kg

Coefficient of the vertical acceleration of the CG of the cars
(Coeff. d'acceleration verticale du CG des voitures)

$\frac{218,5}{497} = \boxed{0,44}$

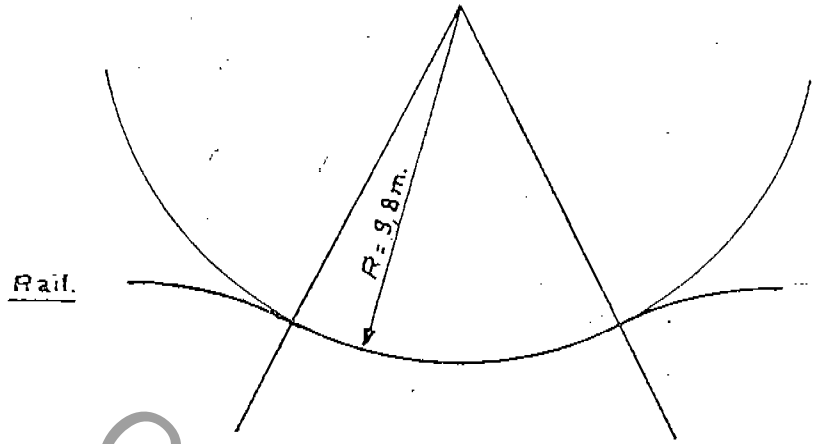


Fig. 4

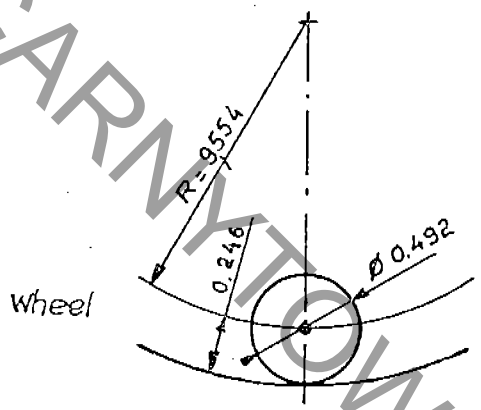


Fig. 5

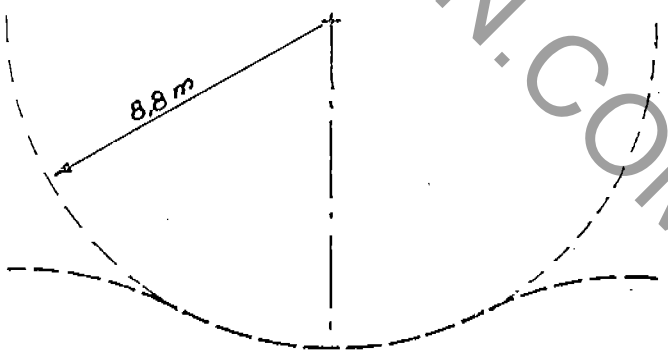


Fig. 6

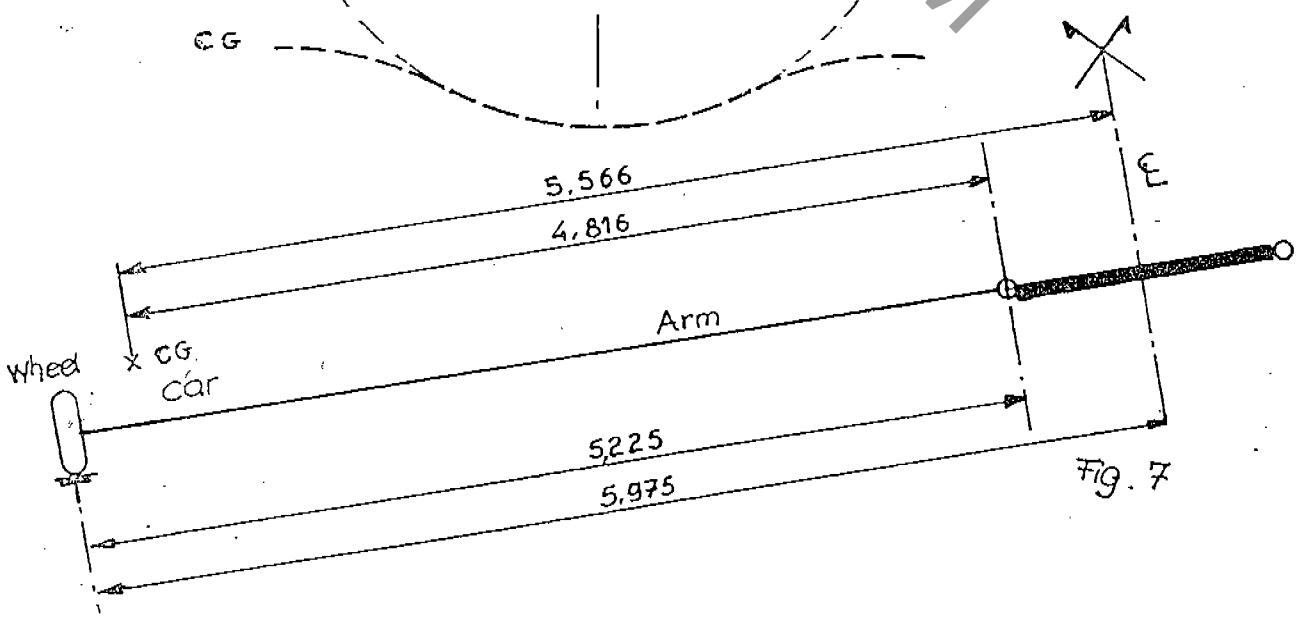
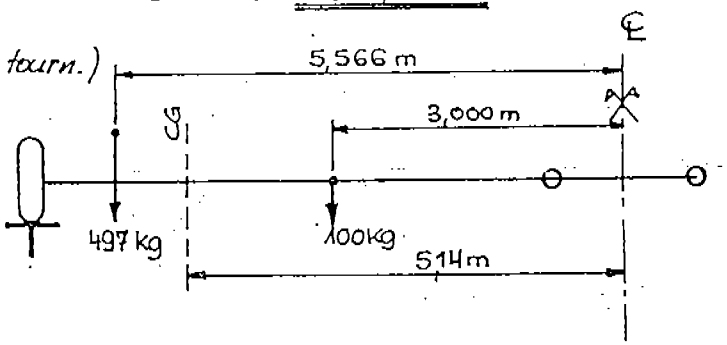


Fig. 7

Driving power by rotation (Puissance d'entrainement en rotation)
CG full load on each rotary element. (CG pleine charge par élément tourn.)

$N = 104$ mm
$\omega = 1{,}05$ rd/s
Acc. Déc. = 33 s Test



Arm = 100kg

$Pt = 497 + 100 = 597$ kg

$M = 497 \cdot 5{,}566 + 100 \cdot 3{,}000 = 3066$ mkg

CG is $\frac{3066}{597} = 5{,}14$ m

Inertia of rotation on each element

$I = mr^2 = \frac{597}{9{,}81} \cdot 5{,}14^2 = 1608$ mkg/s^2

Rotation moment on each element

$M = J \cdot \omega = 1608 \cdot 1{,}05 = 1688$ mkg

Absolute power on each element

$\frac{1688}{33} = 51{,}2$ kgm/s.

Total power

$51{,}2 \cdot 24 = 1228$ kgm/s. or 16,4 Ch for $\eta = 1$

Installed power = 30 Ch.

Power of one hydraulic motor

$\frac{16{,}4}{4} = 4{,}1$ Ch.

Couple of one driving-wheel

$N = \frac{4 \cdot 10}{\pi\ 0{,}492} = 265$ t/mn.

Motor HYDROLAND Ref. 5050 A_1

Couple for 100 b = 7,9 mkg

Working pressure by starting and stopping
(Pression de fonctionnement au demarrage et freinage)

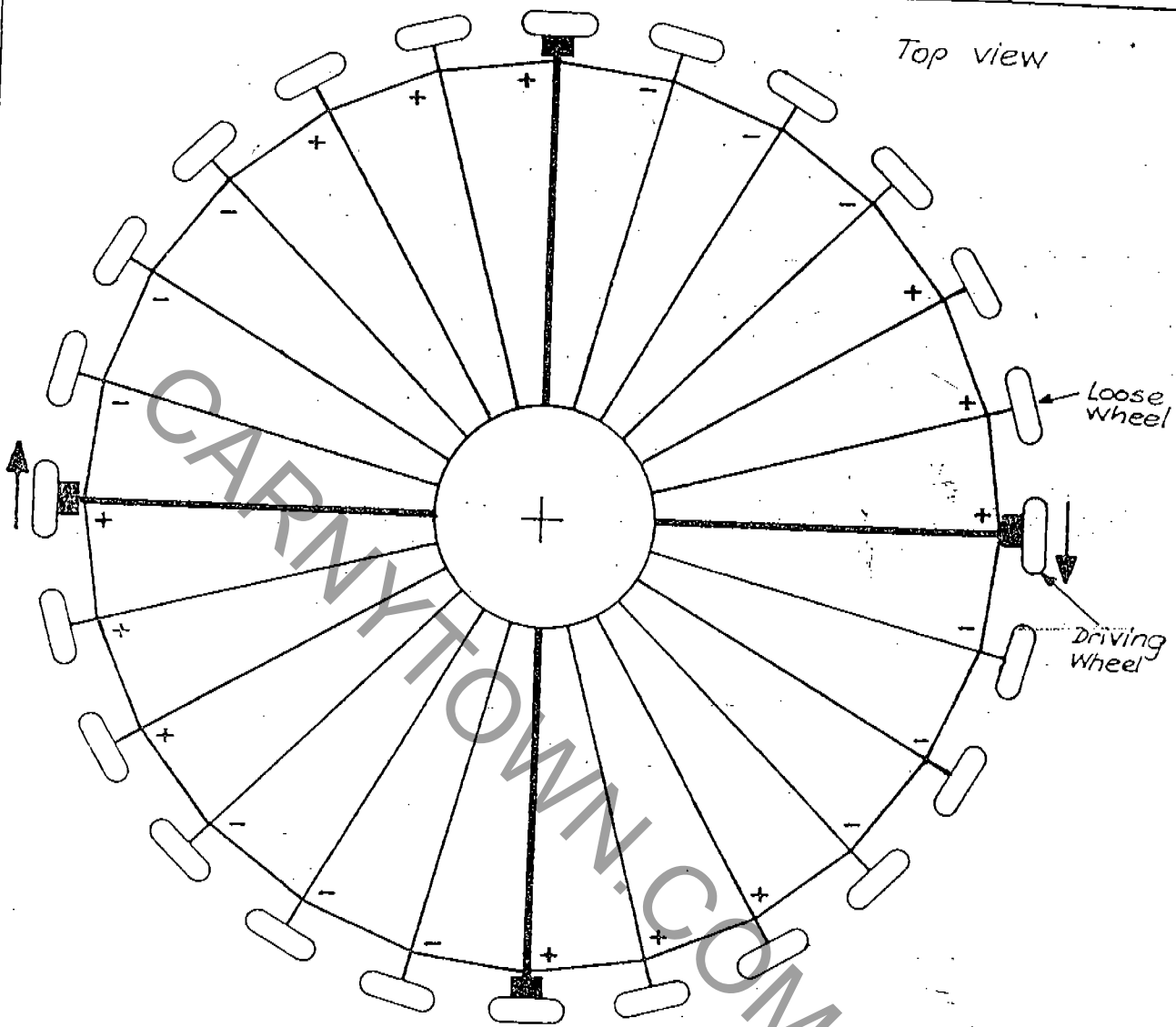
$\frac{100 \cdot 11}{7,9}$ = 153 b for $\Sigma\eta = 1$

For $\Sigma\eta = 0,8$ $P = \frac{153}{0,8}$ = **191 b** $\simeq 55\%$

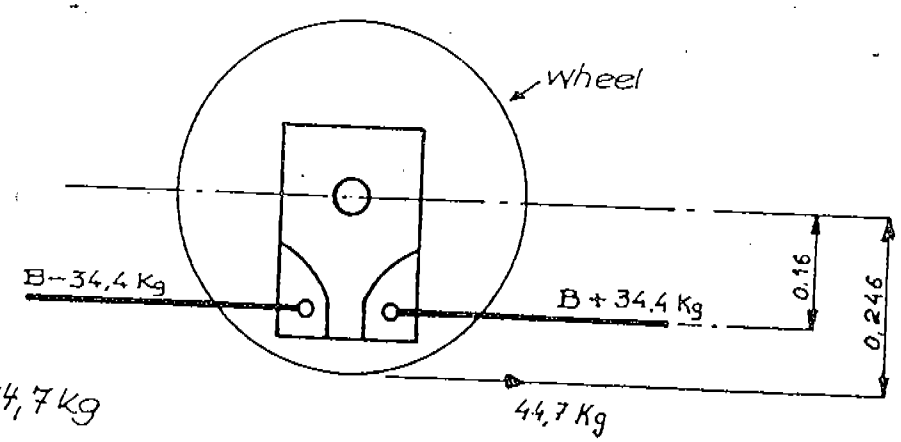
Technical peg
(Fiche technique)

Highest authorized pressure: 350 b
(Pression admissible en pointe)

Authorized pressure by continual working: 315 b
(Pression admissible en utilisation continue)

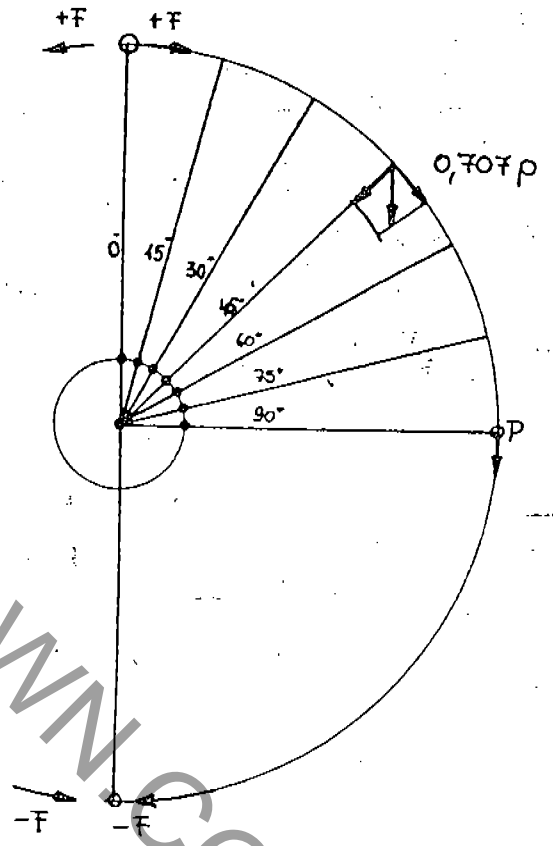


Equalizing of the motor-power of one driving-arm
(Repartition des forces motrices d'un bras moteur)



$F\,kg = \frac{11}{0,246} = 44,7\,kg$

Hyperstatic fatigue on the felloe-section
(Contrainte hyperstatique sur profil de jante)



Analysis

Vertical position of wheel

$$\max. \Sigma F = \pm \left[\frac{P + 2\,(0{,}25882\,P + 0{,}5\,P + 0{,}70711\,P + 0{,}86603\,P + 0{,}96593)}{2} \right]$$

$$\max. \Sigma F = \pm\ 3{,}79789\,P$$

Horizontal position of wheel

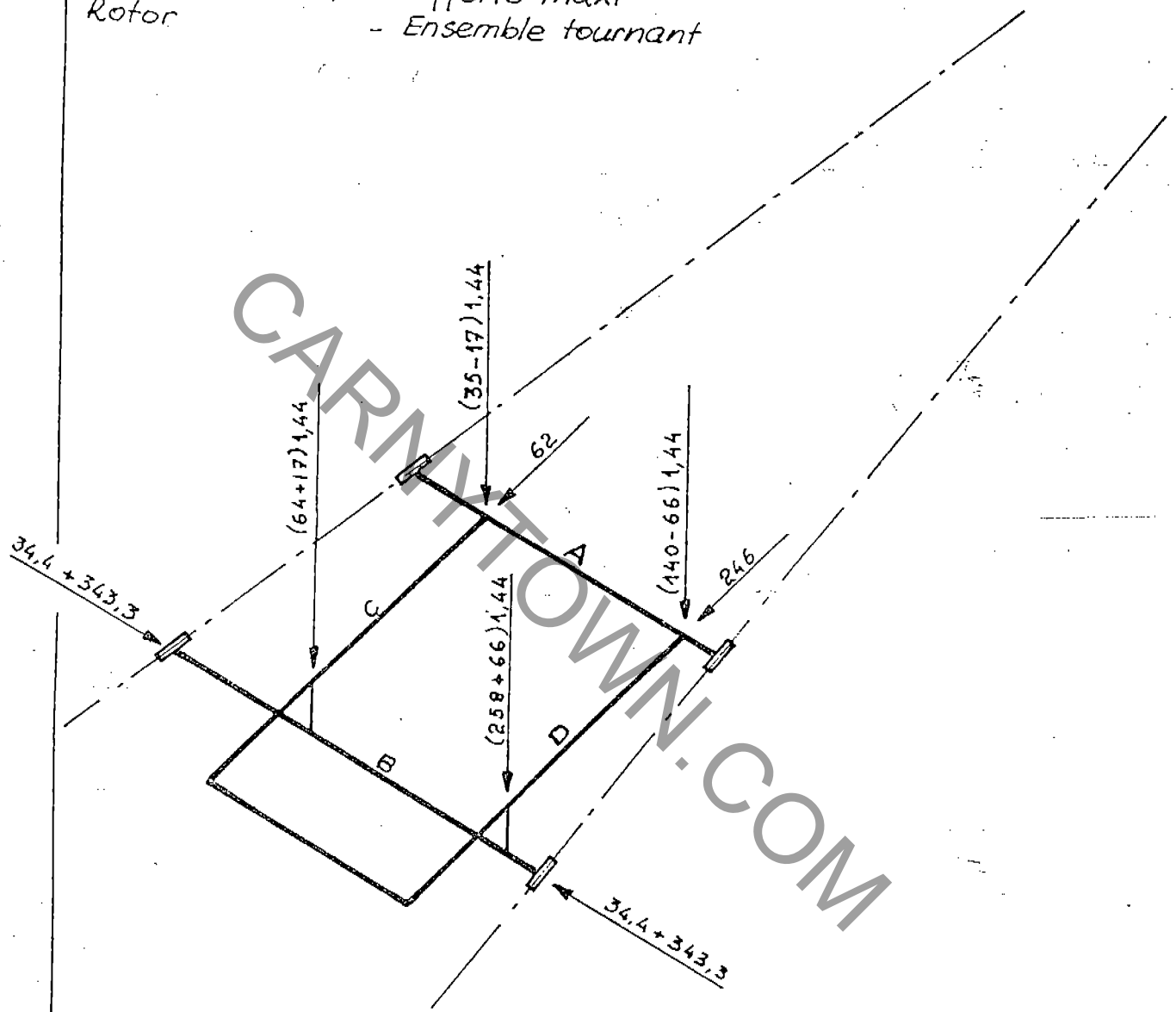
$$\Sigma F = 0$$

Position 10° of wheel

$$\max. \Sigma F = \pm\ 3{,}79789\,P \cdot 0{,}17365$$
$$\max. \Sigma F = \pm\ 0{,}6595\,P$$

$$P = \frac{497 \cdot 5{,}566 + 100 \cdot 3{,}00}{\quad} = 520{,}5\ kg$$

Frame of the car - Chassis de voiture
Forces maximum - Efforts maxi
Rotor - Ensemble tournant

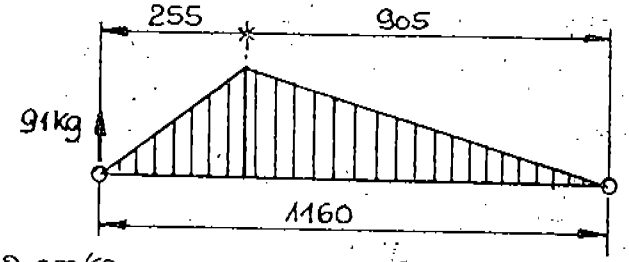


Rotating
(Tournant)

Section C
(Profil C.)

L 60·40·6 St 37

F = 5,68 W = 5,03



$$M = \frac{(64+17)1,44 \cdot 90,5 \cdot 25,5}{116} = 2320 \text{ cmkg}$$

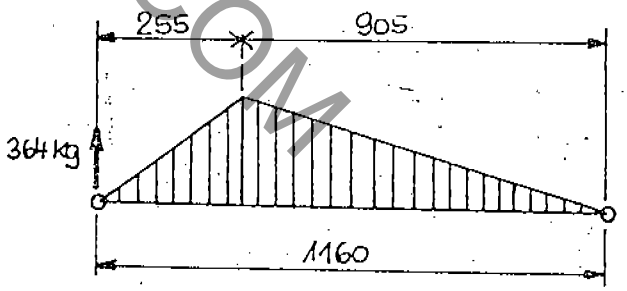
$$T = \frac{(64+17)1,44 \cdot 90,5}{116} = 91 \text{ kg}$$

$$\max. \sigma T = \frac{1}{2}\left[\frac{2320}{5,03} + \sqrt{\left(\frac{2320}{5,03}\right)^2 + 4\left(\frac{91}{5,68}\right)^2}\right] = 472 \text{ kg/cm}^2 = 13\%$$

Section D
(Profil D)

L 60·40·6 St 37

F = 5,68 W = 5,03



$$M = \frac{(258+66)1,44 \cdot 90,5 \cdot 25,5}{116} = 9282 \text{ cmkg}$$

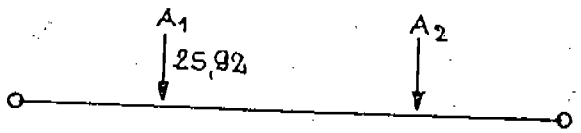
$$T = \frac{(258+66)1,44 \cdot 90,5}{116} = 364$$

$$\max. \sigma T = \frac{1}{2}\left[\frac{9282}{5,03} + \sqrt{\left(\frac{9282}{5,03}\right)^2 + 4\left(\frac{364}{5,68}\right)^2}\right] = 1848 \text{ kg/cm}^2 \simeq 50\%$$

Section A (Profil A) L 60·40·6 St 37

F = 5,68 W_V = 5,03

W_H = 2,38

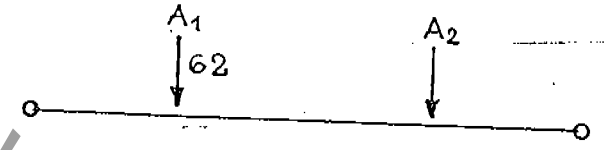


Due in A_1 (vertical)

$M_{A1} = (35-17)\,1,44 \cdot 88,5 \cdot 25 = 505$ cmkg

$M_{A2} = \frac{505 \cdot 13,5}{88,5} = 77$ cmkg

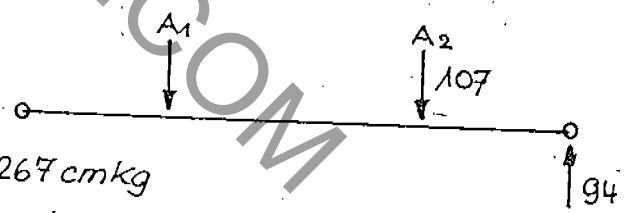
Due in A_1 (Horizontal)



$M_{A1} = \frac{62 \cdot 88,5 \cdot 25}{113,5} = 1209$ cmkg

$M_{A2} = \frac{1209 \cdot 13,5}{88,5} = 184$ cmkg

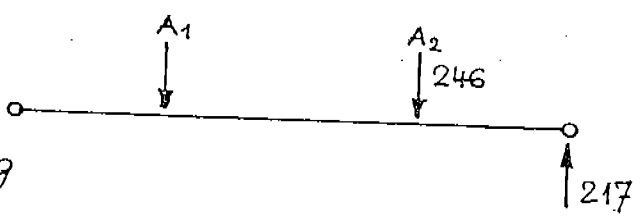
Due in A_2 (vertical)



$M_{A2} = \frac{(140-66)\,1,44 \cdot 100 \cdot 13,5}{113,5} = 1267$ cmkg

$M_{A1} = \frac{1267 \cdot 25}{100} = 317$ cmkg

Due in A_2 (horizontal)



$M_{A2} = \frac{246 \cdot 100 \cdot 13,5}{113,5} = 2926$ cmkg

$M_{A1} = \frac{2926 \cdot 25}{100} = 732$ cmkg

ΣM in A_2 ($M_V = 1267 + 77 = 1344$ cmkg)

($M_H = 2926 + 184 = 3110$ cmkg)

$$\sigma_V = \frac{1}{2}\left[\frac{1344}{5{,}03} + \sqrt{\left(\frac{1344}{5{,}03}\right)^2 + 4\left(\frac{94}{5{,}68}\right)^2}\right] = 268$$

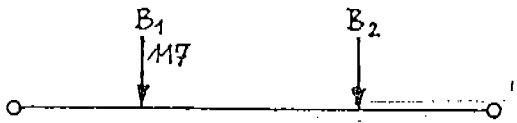
$$\sigma_H = \frac{1}{2}\left[\frac{3110}{2{,}38} + \sqrt{\left(\frac{3110}{2{,}38}\right)^2 + 4\left(\frac{217}{5{,}68}\right)^2}\right] = 1308$$

$$\Sigma\sigma = \sqrt{268^2 + 1308^2} = 1335\ kg/cm^2 \simeq 36\%$$

Section B (Profil B) □ 55 · 3,25 St 37

F = 6,81 W = 10,04

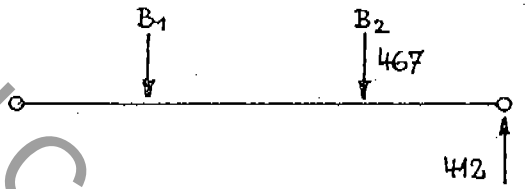
Due in B_1



$$M_{B_1} = \frac{(64+17)\,1{,}44 \cdot 102{,}3 \cdot 38}{140{,}3} = 3232\ cmkg$$

$$M_{B_2} = \frac{3232 \cdot 25{,}9}{102{,}3} = 818\ cmkg$$

Due in B_2



$$M_{B_2} = \frac{(258+66)\,1{,}44 \cdot 114{,}4 \cdot 25{,}9}{140{,}3} = 9853\ cmkg$$

$$M_{B_1} = \frac{9853 \cdot 38}{114{,}4} = 3273\ cmkg$$

$$\Sigma M_{B_1} = 3232 + 3273 = 6505\ cmkg$$

$$\Sigma M_{B_2} = 818 + 9853 = 10671\ cmkg$$

$$T = \frac{117 \cdot 38 + 467 \cdot 114{,}4}{140{,}3} = 412\ kg$$

$$\sigma = \frac{1}{2}\left[\frac{10671}{10{,}04} + \sqrt{\left(\frac{10671}{10{,}04}\right)^2 + 4\left(\frac{412}{6{,}81}\right)^2}\right] + \left(\frac{344+343{,}3}{6{,}81}\right) = 1122\ kg/cm^2$$

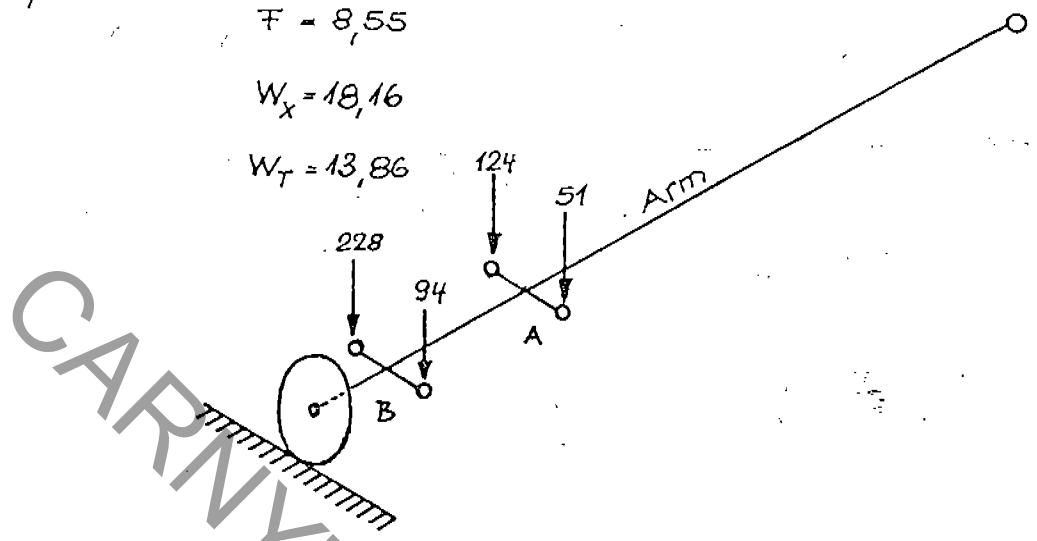
$\simeq 30\%$

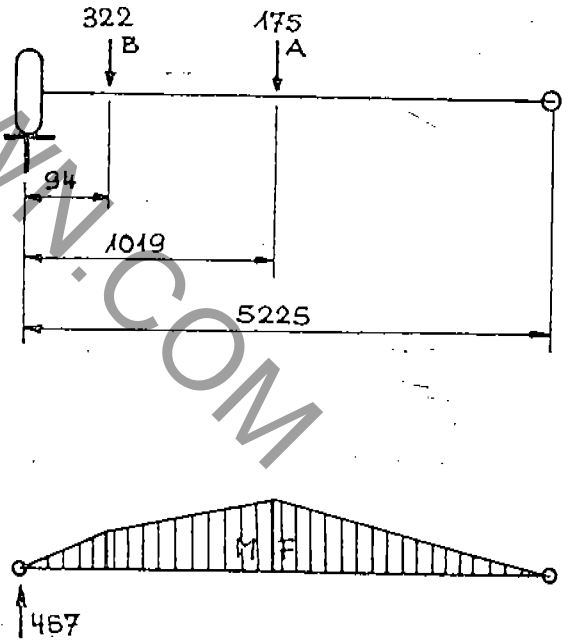
Arm in position stop section ▱ 70·3,25 + ⊔ 60·25·3 ST 37

$F = 8,55$

$W_x = 18,16$

$W_T = 13,86$





M_F due of B

$M_B = \frac{322 \cdot 94 \cdot 513,1}{522,5} = 2972$ cmkg

$M_A = \frac{2972 \cdot 420,6}{513,1} = 2437$ cmkg

M_F due of A

$M_A = \frac{175 \cdot 1019 \cdot 4206}{522,5} = 14355$ cmkg

$M_B = \frac{14355 \cdot 94}{} = 1324$ cmkg

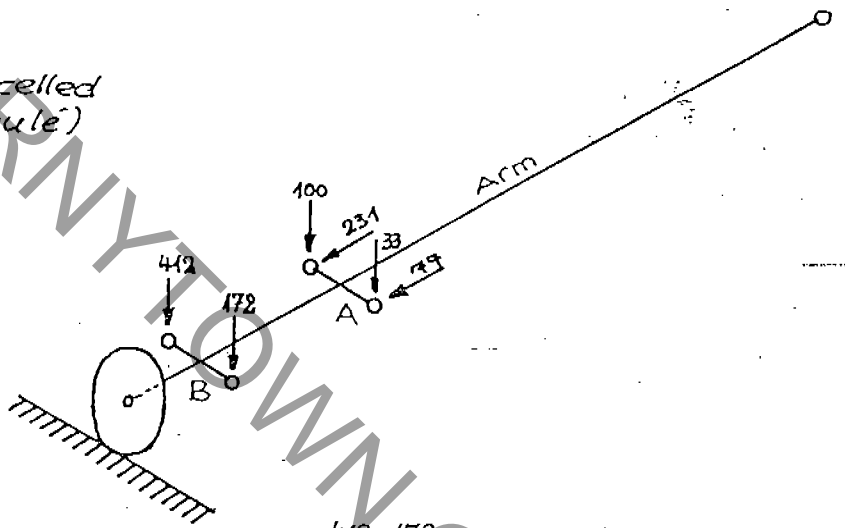
$\Sigma M_T = 7\,(228 + 124 - 94 - 51) = 1449$ cmkg

$T = \dfrac{175 \cdot 420{,}6 + 322 \cdot 513{,}1}{522{,}5} = 457$ kg

$\Sigma T_{max.} = \dfrac{1}{2}\left[\dfrac{23323}{18{,}16} + \sqrt{\left(\dfrac{23323}{18{,}16}\right)^2 + 4\left(\dfrac{457}{8{,}55}\right)^2}\right] + \dfrac{1449}{13{,}86} = 1389$ kg/cm² ≃ 38%

Rotation arm
(Bras tournant)

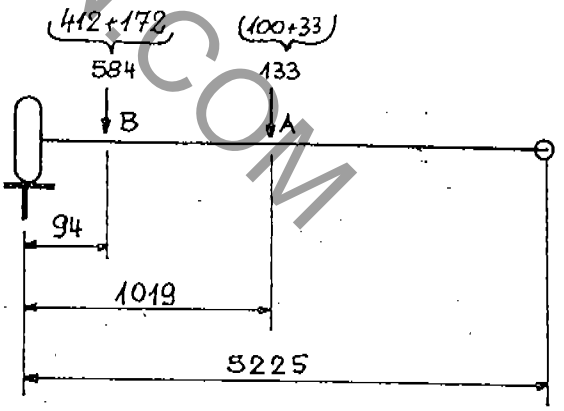
Motor couple cancelled
(Couple moteur annulé)



M_F due in B

$M_B = \dfrac{584 \cdot 94 \cdot 513{,}1}{522{,}5} = 5391$ cmkg

$M_A = \dfrac{5391 \cdot 420{,}6}{513{,}1} = 4419$ cmkg



M_F due in A

$M_A = \dfrac{133 \cdot 101{,}9 \cdot 420{,}6}{522{,}5} = 10910$ cmkg

$M_B = \dfrac{10910 \cdot 94}{101{,}9} = 1006$ cmkg

max. ΣM in A

$\Sigma M_T = 10910 + 4419 + \dfrac{100 \cdot 522{,}5}{8} = 21860$ cmkg

Space Roundup
Hrbctz
USAid 2970
Flea World

MAN-CO MFG., INC.

2470 Ewald Ave. S.E.
P.O. Box 13114
Salem, Or 97302
(503) 362-2341

INSPECTION REPORT

CHECK LIST

30 FT. ROUND UP (FOLDING) DWG. NO. FR-508S DATE _____

PICK SERIAL NO. _____ OWNER _____

1. Check blocking on front and rear outrigger and landing gears.

2. Check leveling.

3. Check condition of outrigger pins and snap keys.

4. Use Dwg. No. FR-510S.

5. Inspect condition of drive belts and belt guards.

6. Check electric brakes.

7. Inspect condition of drive wheel tire.

8. Check drive wheel lug nuts.

9. Check tarp for rips (cracks and missing set screw).

10. Check flange bearing.

11. Inspect condition of drive mount pins and safety keys.

12. Check summit box of rim section cap and screen.

13. Check condition of safety chain, e

14. Check condition of rim section pad cushions.

15. Inspect condition of walkway boards.

16. Check condition of center panel and for snap keys.

17. Inspect condition of top cage turnbuckle rods and safety keys.

18. Inspect condition of rim pins and linch pins.

19. See D.W.G. No. FR 5178.

20. Check door tapswitch.

21. Inspect condition and operation of door limit switch - (open and close).

22. Inspect door actuator motor and pins.

23. Check for door actuator motor safety cable.

24. Check all electrical wire on doors and plugs.

25. Inspect condition of wire screen on doors.

26. See D.W.G. No. FR 5038.

27. Inspect condition of hub pin and safety keys.

28. Safety limiting ring.

29. Inspect condition of electrical brushes and light colle. ring.

30. Check condition of door limit switches.

31. Check condition of door actuator assembly.

32. See D.W.G. No. FR 520S.

33. Check door switch on control stand.

34. Check stop and start switch for drive motors. (Note: Do not turn switch off while ride is rotating.)

35. Check stop and start switch for hydraulic pump electric motor. (Note: do not turn switch off while ride is rotating.)

36. Check electric brake control.

37. Check elevation control joy stick. (Forward is up, back is down.)

38. Inspect condition of aluminum steps and hand rail, step support pipes.

39. Inspect condition of hydraulic dump valve. See Dwg. FR 509S.

40. Check cylinder flow control valve.

41. Check relief valve.

42. Check condition of emergency dump valve.

43. Check condition of emergency dump valve lever and actuating trigger and spring.

44. Check condition of safety chain. (Note: chain must be connected to main boom.)

45. Inspect condition of belt guard on hydraulic electric motor.

46. Inspect condition of fence post and platform fences, and linch pins.

47. Check all lights.

48. Check for hydraulic oil leaks.

49. Check ride for correct rotation. (Clockwise rotation only.)

50. Check ride for correct rpm's. (18 max.)

51. Inspect condition of all electrical wires, switch box and plugs.

52. Check for correct power hook-up (220 volts single phase for light and 220 volts three phase for electrical motors).

53. Check oil assembly pins for snap keys.

54. Inspect ride and ride operator for overall appearance.

55. Check out ride operator in proper use and function of the ride.

_____

Inspector

REMARKS:

FRANK HRUBETZ & CO., INC.
3495 25th Street, S. E.
Salem, Oregon 97302

INSTRUCTIONS TO ASSEMBLE THE ROUND-UP

The Model 24 Round-Up requires a space 35 ft. by 35 ft. and the Model 30 requires 40 ft. by 40 ft. It can be used either in center location or a side location but really shows up better in the center.

Spot the ride centrally in the space provided and allow four feet from the midway line to the rear end of the trailer. Lower the front and rear screw jacks and install the diagonal angle braces. Check level of ride both longitudinally and laterally and adjust screw jacks to bring the frame into level position. The weight at the rear should be taken off the tires by the use of a hydraulic jack and transferred to the two center screw jacks. Use 2" X 12" X 24" wood blocking under all jacks.

After ride is leveled and resting solidly on the two sets of screw jacks, swing the rear outriggers out and install outrigger braces, 3" pipe brace from end of outrigger upward to rear corner of deck, the 2" pipe brace from end of outrigger to rear corner of trailer. Adjust outrigger screw jacks to snug position but do not take weight off of center jacks. Next install front sway brace to side of front screw jack assembly. This is the 3" pipe with hinged foot and turnbuckle assembly. Tighten the turnbuckles until the sway brace rests solidly but do not attempt to take the weight off of the center jack assembly.

The screw jacks are for convenience of adjustment only, and will not lift the weight of the ride. If the ride must be lifted to level use hydraulic jack and adjust screw jacks while they are in the free position.

Unload ticket office panels from front end of trailer and swing front end gate and side racks down. Unload miscellaneous, steps, floor boards, light box, etc., from front end of truck.

Next, assemble the wheel spokes. Starting from the left side install two spokes consecutively. Drive upper pins from right to left. All spokes are interchangeable. There are no marked or numbered parts. Next, install one floor board by resting it on top of the two spokes with its inner edge under the angle clip.

To assemble rim section first set up one set of steps and place it so the top step is just under the end of the wheel spoke. The rim section can then be placed in position by three men. Place lower end of rim section on top of step with scallops upward. One man can then walk up the steps and tip the section to the vertical position. With one man on the step to steady the section and two on the ground at either end, the section can be slipped into place by inserting the bars on the section into the sockets of the spokes. Note that the floor board must rest on top of the two clips on the inner side of the section and under the center clip. With the section so in place the two retaining pins can be inserted from the top down. These are the 3/4" X 6" pins.

Proceed in this manner by assembling one additional spoke, one floor board and one rim section until 4 have been assembled on the Model 24 or 5 on the Model 30. The next rim section should then be an entrance section or one of the two without passen-

ger cells. In the final assembly these entrance and exit sections must be directly opposite each other. Assemble the remaining passenger sections, leaving the last section to be an entrance section. After all sections are in place, check all pins for cotter pins.

Next install the upper tie rods. These are the ½" rods with turnbuckles and go from the top of the rim section to the top of the center pole. Unscrew the safety nut and the safety plate on top of the center pole sufficiently to allow the hooked ends of the rods to be assembled to center pole plate. Assemble the rods with the turnbuckles out so that cotter pins can be used on the outer ends of the rods. No cotters are needed on the inside when the safety plate is screwed down. Tighten these rods, two to a cell, only until the sag is taken out. Do not put them in tension since the passenger cell could be crushed with too much pull from these rods.

Next assemble the inner guard rail. These sections fit on top of the spokes at the inside of the floor boards and are retained by the 1¼" pipe posts which are driven from the top down and secured with a cotter pin at the under side of the spoke. The center clip on each section fits over the floor board to provide additional support.

The entrance and exit steps can now be assembled and located. Place the entrance step just to the left of the rear outrigger support and in such position relative to the wheel that it provides an easy access to the deck of the wheel assembly. In assembling the hand rails to the steps, note that one rail is provided with two pipe fittings welded to the center of the rail. This hand rail must be placed on the right side of the entrance step since it fits the push button and brake control assembly. This assembly is fitted with two pronge which slip into the two pipe sockets provided on the hand rail.

Next assemble the valve control rod which fits over the 5/8" pin on top of the rear angle brace and connects to the valve control lever with the ½" rod which will be found on the valve control lever. This control rod can now be operated from the center of the entrance step.

The lights should now be installed. All sockets are in place except the wheel spoke strips which are packed in the light box. Assemble strips by placing them with the tube upward on top of the sweep, pig tail inward, and slipping into the sockets provided. The fixture is secured from slipping by inserting a large cotter pin through the top of the spoke at the inner end of the fixture. Stops are already provided at the outer end. Plug all lights into the outlets on the under side of the spoke plate.

Next check to see that the 6-volt battery is in place in the socket provided on the left side of the rear deck plate and that the two spring connector clips are connected to the battery terminals. This provides current for the electric brakes.

Next adjust the friction drive tires to the rim of the wheel by forcing the drive assemblies outward with the 3/4" turnbuckles which will be found between the drive wheel assembly and the main frame. Both tires should be adjusted equally so that about 80% of the tread bears against the rim of the wheel. Not enough pressure here will cause the tire to slip and too much pressure will cause the rim of the 12" wheel to cut the tire.

The ride can now be connected to the power supply. Since we provide both single phase and three phase installations according to the customer's requirements, be sure to check the motor name-plate to determine the type of power required. Both single

and three-phase installations are all wired for 220 volts at the factory. Connect the power line to the main disconnect switch. Two-wire, 220 volt for single phase and 3-wire, 220 volt for 3-phase. This one connection connects all motors. The ride is now ready for operation.

Press motor start buttons one at a time, one will start the pump motor and the other will start the two rotation drive motors. In three-phase installations the direction of the rotation may be reversed. Check rotation to be sure that the ride rotates clockwise when looking down on it. If the ride runs opposite, the direction may be reversed by changing any two wires in the disconnect switch on three-phase installations. Single phase motors can only be reversed by shifting the brush assembly on type SCR motors or changing the connections according to the diagram inside the motor connection box on capacitor type motors.

The valve control lever which elevates the ride can now be operated. Push the lever toward the center of the ride and the ride will elevate. Hold the lever in the extreme inward position until the automatic stop closes the valve. The automatic stop can be felt engaging on the hand lever, and you should allow this pressure to ease the handle into neutral position. The ride is now elevated to its maximum position and will stay there until the hand lever is moved past neutral to the outward position, which allows the ride to come down. A little practice will show that the valve can be eased into neutral position to prevent the motion from sudden stops.

The rotation is stopped by pressing the motor stop button and moving the electric brake control lever inward toward the ride. You will note that this control is rather sensitive and too much braking will cause the tires to slide. However, after a little practice you will learn to stop the ride smoothly and without sliding.

OPERATION OF RIDE

In operating the ride with passenger loads, it is recommended that the following procedure be followed. Check passengers to see that all are in the cells with the safety chains fastened and that the ride is reasonably balanced. Do not unbalance the ride by more than 4 passengers. Start pump motor. Start rotation and allow wheel to come up to full speed (about 8 seconds). Move valve control to elevating position and hold until ride reaches maximum height. Allow ride to remain at maximum height for 4 to 6 revolutions, depending on size of crowd. Move valve control to down position and hold, allowing ride to come down. When ride is two-thirds down press stop button on rotation motors. Ease the ride to full down position by slowly closing valve. Apply brake and bring ride to stop with exit and entrances in line with steps.

DO'S AND DON'TS

DO

Always check passenger & safety chains before starting.
Be sure load is well balanced.
Allow rotation to come to full speed before elevating.
Cut rotation motors when ride is two-thirds down.
Go easy on the brakes.
Ease the control valve on and off.
Always be alert.

Instructions to Assemble Round-Up

DO NOT
Never raise loaded ride before it is up to speed.
Never stop rotation with ride in extreme up position. ← Very important
Never close valve suddenly.
Never leave control stand while ride is running.
Never unbalance ride.

MAINTENANCE — Men only

Grease with zerk gun once per week:
Main spindlehub (top and bottom)
Both ends of hydraulic rams
Main rocker shaft bearings
Countershaft bearings on drive motor assemblies

Once per year:
Check drive wheel bearings.
Check motor bearings.

Drive wheel tire pressure - 30 pounds.

Hydraulic oil - #9 ice machine oil or # 10 SAE motor oil.

TIPS

If ride fails to elevate - Check tension on V-belts, motor to pump. Check oil level (2 inches from top of tank) - Check pump.

If motors fail to start, press reset buttons on magnetic switches, check main switch fuses, check power supply.

If ride fails to come up to speed in 10 seconds - Check V-belt tension (two sets) Check wheel pressure against rim of wheel.

If howl develops in hydraulic system - Cause: Increasing oil temperature causes increased packing pressure. Remedy - loosen each of three packing gland nuts equally one-half turn - when oil cools down reset packing gland nuts.

If in doubt, call us, and we will do everything possible to help you.

USAID 2972
"Boats"
mfs. "mansells"
Flea world.

KIDDIE BOATS OPERATION AND SAFETY

Before operation or opening of the ride all attendants must inspect the ride to make sure there are no problems with the safety or operation of the ride. The following are things that need to be checked daily on the Kiddie Boats.

1. Make sure all safety belts are working properly.
2. Check walkway to be sure there are no boards broken or rotting.
3. Check fencing for any loose or unstable railings.
4. Make sure all rules are posted and signs are clearly visible to guests.
5. Check controls to be sure they are working properly.
6. Report any problems to supervisor immediately.

In order to ensure the safety of all guests the following rules apply to the running of the Kiddie Boats.

1. All riders must be under 90 pounds.
2. Help children into ride.
3. Lock all safety belts.
4. All riders must remain seated during the entire ride.
5. Keep gate closed and locked.
6. Stay near the control box at all times.
7. When ride ends help children off ride.
8. Watch children during the ride for any problems (standing, unlocking belts, etc.). Stop ride immediately if this occurs.

Fill out Kiddie Boats daily checklist and return to supervisor.

KIDDIE BOATS DAILY CHECKLIST

Attendant's name_____
Today's date_____

	INITIALS	Start of Shift	End of Shift
1. Wipe down ride.			
2. Inspect ride for safety problems (see clipboard).			
3. Check operation of the ride.			
4. Clean area around ride.			
5. Any lights out? If yes where? _____			
6. Are all safety belts working?_____			
7. Report any problems to supervisor.			

List below any comments, ride problems or suggestions from today's shift:

_____

_____

_____

_____

_____

_____