

MEG: REVERCHON
RIDE: EXPLORER.

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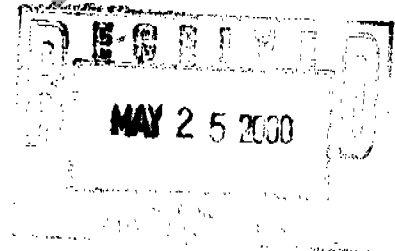
"EXPLORER"

MAINTENANCE INSTRUCTIONS

Customer name: VALLEE, Canada
Serial No.: 1983
Date shipped: April 22, 1983
Trailer ID No.: 066.83.89

ATTACHMENTS:

Acceptance Test Certificate
Construction Quality Certificate



These maintenance instructions contain 24 pages
+ 1 drawing, No. CR 50 687 01, Hydraulic Diagram
+ 1 drawing, No. 38 0398 23, Electrical Diagram

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CONSTRUCTION QUALITY CERTIFICATE

This certificate is issued for the "EXPLORER" amusement ride that was shipped from our factory on April 21, 1983, bearing Serial No. 1983, and the principal characteristics of which are as follows: Dimensions 16 m x 17 m, weight 26 tons, portable unit on a 14 m trailer. It was sold to F.R.D., P.O. Box, Pleasantville, NJ 08232, USA.

This unit has been designed and built to comply with the following standards:

- CM 56 for the mechanical construction
- C. 15.100 for the electrical equipment
- NRV 65 for the effect of wind on structures

It does not comply with the latter standard in terms of the effects of snow.
This structure must not be exposed to the risk of snow.

There are currently no special standards covering portable or amusement structures in France. Such standards are currently being studied by AFNOR. It is therefore essential that the user comply with the instructions contained in the Maintenance Manual.

It is imperative under all conditions that, before operation, the operator and the inspector responsible for inspecting the installation make certain that the following safety systems are operating properly:

1 - Equipotential connection of the metal masses to ground via an electrical cable with a minimum cross section of 10 mm². The ground connection must have a maximum resistance of 10 Ohms, if the differential breaker is rated at 500 mA.

2 - Verification of the principal anchor points (posts, stabilizers, cross-bracing, etc.), which must withstand the maximum load indicated and must cover a sufficient area on the surface of the ground so that they do not sink into the soil (approximately 0.5 kg/cm² for soft soil, approximately 1 kg/cm² for natural soil, approximately 5 kg/cm² for gravel-covered ground).

3 - Verification of the general condition of the structure, the shafts and the pins, the mechanical clearances, traction and hoisting cables, electrical connections and conductors, welds and corrosion.

4 - Verification of the date of this Certificate.

For the dynamic structures, it is a good idea to have the structure inspected every two years by the builder or by a specialized organization authorized to perform this type of inspection, as a function of the technical characteristics of the structure.

Issued April 21, 1983

Christian Reverchon
Chief Executive Officer, S.A. REVERCHON
[Signature and stamp]

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"EXPLORER" HYDRAULIC TEST INSTRUCTIONS

Date: April 19, 1983

Serial No. 1983	Customer: VALLEE	Date: May 18, 1983	Approved by: Gilles R.
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MEASUREMENT READINGS

Boost

Lifting

FORWARD

} Acceleration

} Reverse

REVERSE

} Acceleration

} Reverse

	Theoretical	No load	
		ACTUAL	
P5	25-30 b.	30 b.	30 b.
P3	Tare 90 b.	65 b.	85 b.
P4	250 b.	150 b.	250 b.
P2	350 b.	210 b.	360 b.
P4	350 b.	300 b.	360 b.
P2	25-30 b.	30 b.	30 b.

- Speed – FORWARD:

- of the carousel
- of the hinge
- Ratio of speeds: hinge/carousel

- Speed – REVERSE:

- of the carousel
- of the hinge
- Ratio of speeds: hinge/carousel

- Thickness of stops on hydraulic jack

- FORWARD: *[handwritten word illegible]*
- REVERSE

	<u>Design</u>	<u>Actual:</u>
	16 rpm	15.25 rpm
	20.5 rpm	20.8 rpm
	1.28	1.30 d.
	14.5 rpm	14.3 rpm
	18.5 rpm	19.15 rpm
	1.28? <i>[illegible]</i>	1.34
		10.7 mm
		12.3 mm

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"EXPLORER" – HYDRAULIC TEST INSTRUCTIONS (continued)

ELECTRICAL INSPECTION

- Power supply
- Frequency
- Design speed of motor
- Operating current under full load

208 V, three-phase

59.5 Hz

1740 rpm

150 A

- Jack micro-contact limit switch set at:

70 mm

from top dead center

SPECIAL COMMENTS

- Brake tightening torque 15 m kg
- Angle between brake stops: 180 °

Serial No. 1983	Customer. VALLEE	Date: May 18, 1983	Approved by: Gilles Rev.
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IMPORTANT RECOMMENDATIONS

EXPLORER / MATTERHORN

The capsule support axle which is at the end of the arm is the only safety support for the passengers. It has been manufactured with the greatest possible care. The grade of steel used is SC 48 F.

To prevent accidents, this axle must be inspected every six months or every 1,000 hours of operation of the carousel, whichever comes first.

The inspection must be performed with test equipment that makes it possible to detect cracks. If even the smallest crack is detected, all the parts must be replaced.

Any parts that exhibit oxidation or rust must also be replaced.

The pivots must also be inspected once a week.

The pivots must also be replaced if they exhibit excessive play.

Allowable play, pivot installed:	Lateral:	2/10
	Radial:	zero

The Nylstop nuts may be removed and reinstalled a maximum of three times. The fourth time these nuts are removed, they must be replaced by nuts of the same quality. The nuts must be tightened to a torque of 10 m.kg.

Drawing on Page 6:

CAROUSEL: "EXPLORER" - PARTS REQUIRING FREQUENT MAINTENANCE

CARNYTOWN.COM

Drawing on Page 7:

EXPLORER

DECORATIVE ACCESSORIES AND FLOOR: Scale 1/100

Legend for plan view:

Rayon extérieur nacelles = Outside radius of capsules

SORTIE = EXIT

Entrée = Entrance

CARNYTOWN.COM

"EXPLORER" CAROUSEL - MAINTENANCE TAB

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Parts Designation	Quantity	ID	Maintenance Operations	Frequency	Precautions	Comments
Top ring gear	1	A	Grease gear teeth	Once a day	Use Mobil Doria 30	Clean gear teeth applying lubricant
Bottom ring gear	1	B	Grease ball race	Every 30 hours	See table, page 2	Same as top ring gear
			Tighten bolts	1 mo., then 6 mos.	Torque = 40 m.kg	
Top pinion	1	C	Grease gear teeth	Once a day	Mobil Doria 30	Clean gear teeth applying lubricant
			Pinion - Gear play	Once a week		
Bottom pinion	1	D	Same as top pinion	Same as top pinion	Same as top pinion	Same as top pinion
			Check oil level	Once a day	ID 19	
Hydraulic system	1	19	Minimum oil pan temp: 35° C (95° F)	Before each startup	2.5°E<viscosity<20°E	Max. temp. 80 assume this is which would be
			Drain system	Once a year	Drain plug ID 20	Drain each Ni then every 50 each draining
Hydraulic filters	2	15	Replace cartridge	10", 50", 100", 500"		
			Replace cartridge	Once a year		
Rotating joint	1	16	Test for leaks	Every 6 months		Before each s then every 6 r
			Tighten base bolts	Once a day	Torque = 50 m.kg	Adj. with inclin
Central tower	1	E	Clearance of feet in slide	1 month, 6 months, ...		
			Tighten bolts	Once a week	Torque = 70 m.kg	
Compass bearing	4	H	Tighten bolts	Once a week	Torque = 20 m.kg	
			Turret elevation shaft	Once a month		
All pins on rotating portion	2	J	Check for proper installation	Once a day		Before starting
			Pivot, end of arm	Once a week		
Capsule safety bar	20	K	Check clearances	Once a week		
			Check correct operation of jack	Once a day		Before starting
Trailer chock	1	L	Visual inspection	Once a day		
			Welds	Once a month		



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EXPLORER: ERECTION INSTRUCTIONS

- Tow the trailer to the desired site. Be careful to have the rear truck up on 15 cm wooden shims (Figure 1).

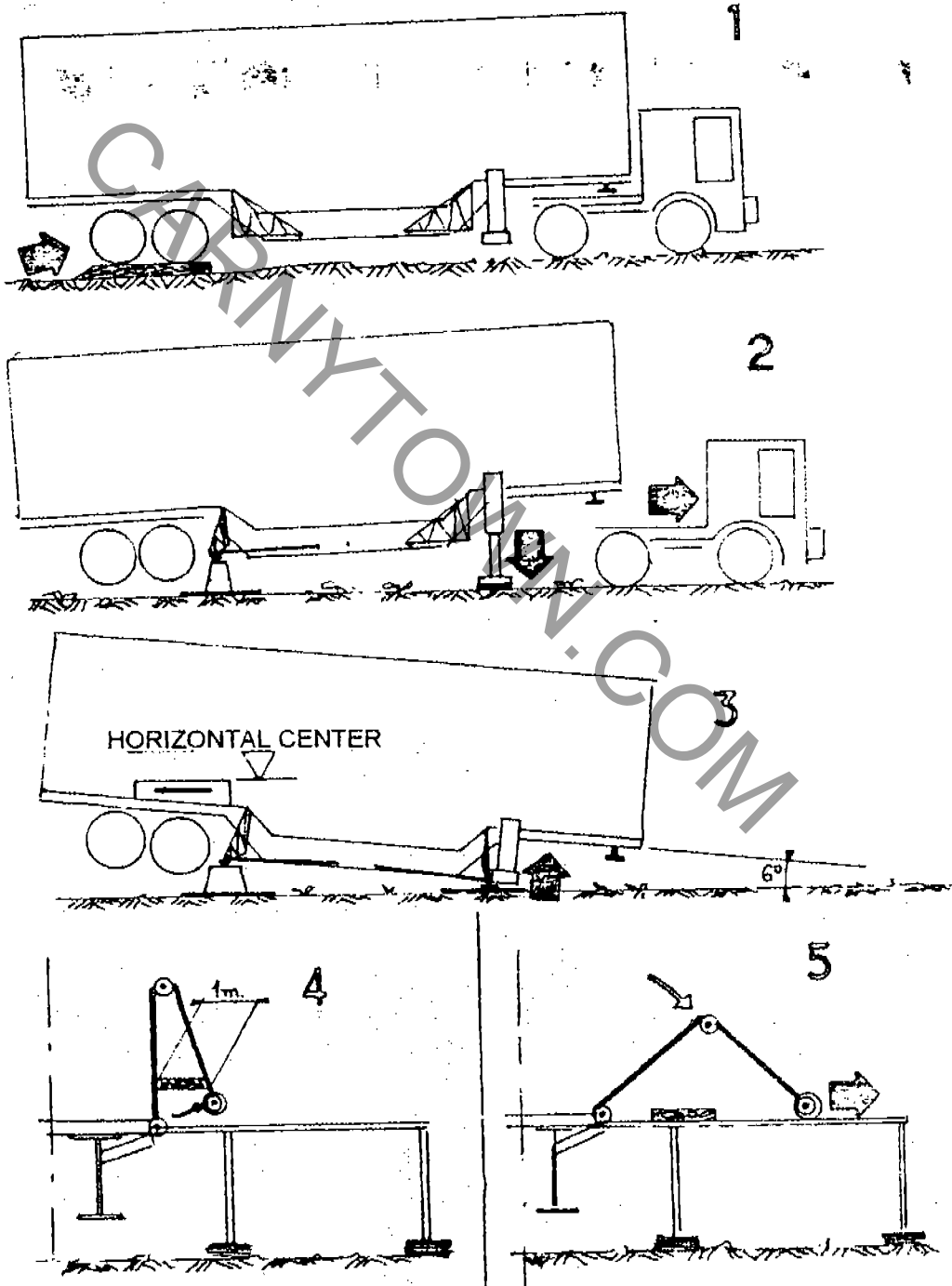
BEFORE ANY HYDRAULIC OPERATION:

Connect the electric motors and verify their direction of rotation. If the motors are not rotating in the correct direction, reverse the 2 wires for Phases I and II.

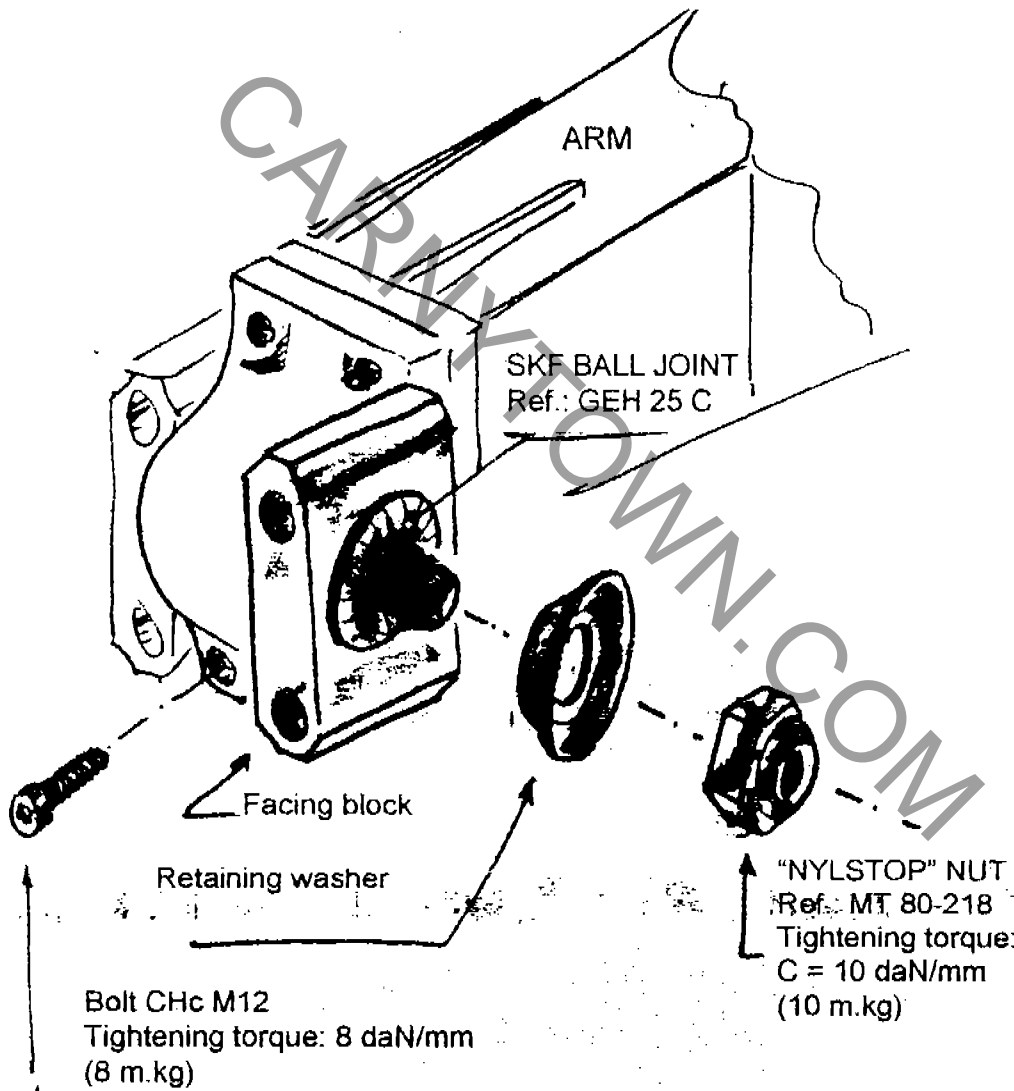
- Operation of the FORWARD prop
 - Remove the 2 pins.
 - Move the 3rd lever  on the distributor upward to lower the prop, and carefully insert a 30 cm wooden shim. 
 - The trailer lifts up.
 - Unhook the tractor (Figure 2).
 - Manually open the side extensions (about 1 m) and chock them (Figure 4).
 - Open stabilizer A2 and the cross bar.
 - Place the support drum under the stabilizer, and place approximately 1 m² of 25 mm thick plywood stabilizer on the ground between them.
 - Level the unit transversely.
 - Lower the prop (Figure 3).

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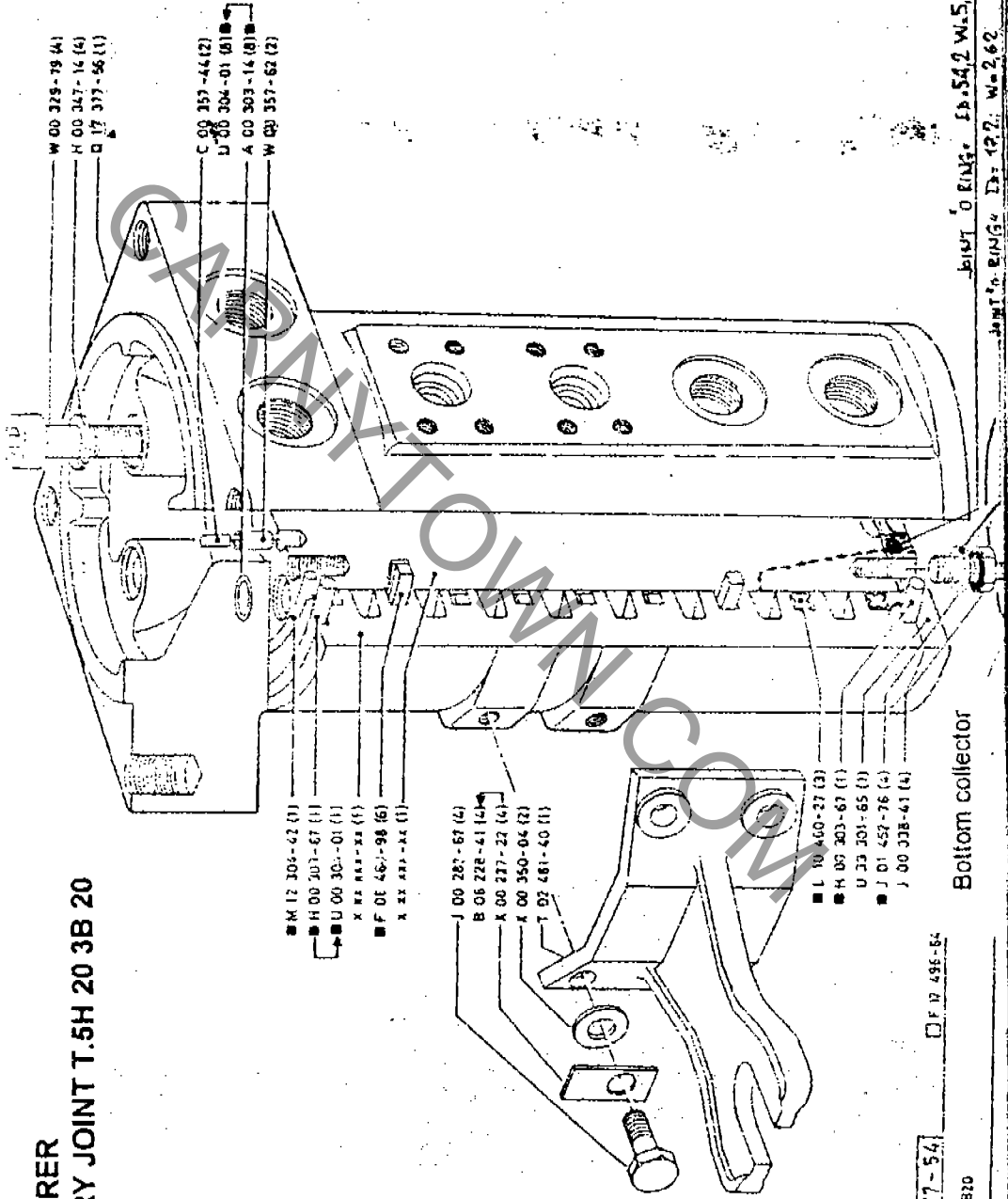
EXPLORER - ERECTION



INSTALLATION OF THE SUPPORT BALL CUPS



EXPLORER
 ROTARY JOINT T.5H 20 3B 20



- W 00 325-19 (4)
- H 00 347-14 (4)
- Q 17 377-56 (1)
- C 00 357-44 (2)
- U 00 304-01 (8) (1)
- A 00 303-14 (8) (1)
- W 00 357-62 (2)

- M 12 305-62 (1)
- H 00 307-67 (1)
- U 00 307-01 (1)
- X 22 222-22 (1)
- F 0E 467-98 (6)
- X 22 222-22 (1)

- J 00 287-67 (2)
- B 06 222-41 (4)
- K 00 277-22 (4)
- K 00 350-04 (2)
- T 02 481-40 (1)

- L 10 400-27 (3)
- H 00 303-67 (1)
- U 30 301-65 (1)
- J 01 457-76 (4)
- J 00 338-41 (4)

F 12 495-54

N 17 377-54

SH20 3820

ID 78

HT08 B03.0

LIST O RING. 15.542 W.57
 LIST O RING. 15.542 W.57

CHARACTERISTIQUES
 OPERACIONICAS
 KENNDAATEN
 TYPE

	NEPRAVA REFERENCIAL REFERENCIE	DIMENSIONES A DIMENSIONES A A DISTANZ		DEBITO NOMINAL CAPACIDAD NOMINAL NENNLEISTUNGSMENGE RATE FLOW		PRESION MAXIMA MAX. DRUCK MAX. PRESSURE	
		mm	in	l/min	US gpm	bar	PSI
TETE CAJETA KOPF HEAD	F6						
	E7	55	1.38"	170	44.9	37.4	450
	B7						2
	B8						20
CORPS EXTERIEUR CORPO EXTERIOR AUSSEN ANSCHLUSSE CUTER BODY	F6	55	1.38"				
	E7	55	1.38"	170	44.9	37.4	450
	B7						2
	B8						20
GRASA DE ENGRASE SCHMIERUNG GREASE POINTS	F6	Pasaje de aceite impermable Passage de aceite obturado Dichtung des Öl-unbeding. notwendig Oil flow impervious					2

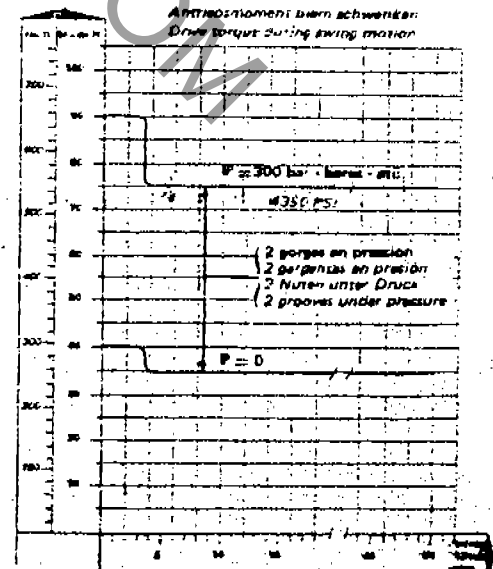
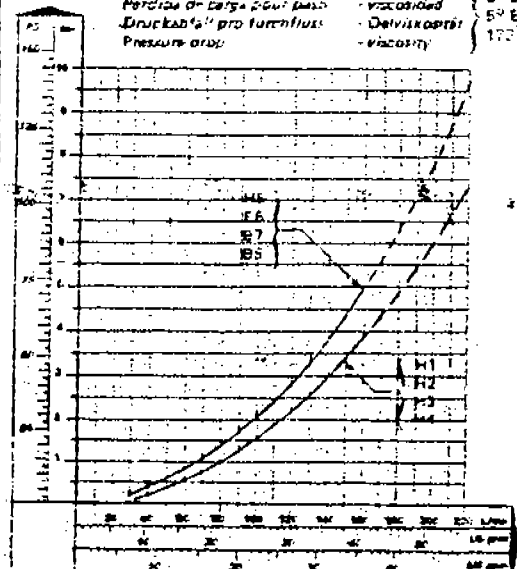
Temperatura normal de utilización - Límites correspondientes
 2.5° E < viscosidad de aceite < 20° E
 15.6 cSt < viscosidad de aceite < 152 cSt
 81.35 SSU < viscosidad de aceite < 726.1 SSU
 A : distancia de los orificios a la superficie de apoyo de la junta giratoria
 Orificios F6 : retorno de fuga
 E7, B8 : aceite (20 bar) o aire (7 bar)

Normale Arbeitstemperatur - Grenzwerte entsprechend
 2.5° E < Ölviskosität < 20° E
 15.6 cSt < Ölviskosität < 152 cSt
 81.35 SSU < Ölviskosität < 726.1 SSU
 A : Abstand der Öffnungen im Bezug auf die Stützfläche des Drehgelenks
 Öffnungen F6 : Leckrücklauf
 B7, B8 : Öl (20 atü) oder Luft (7 atü)

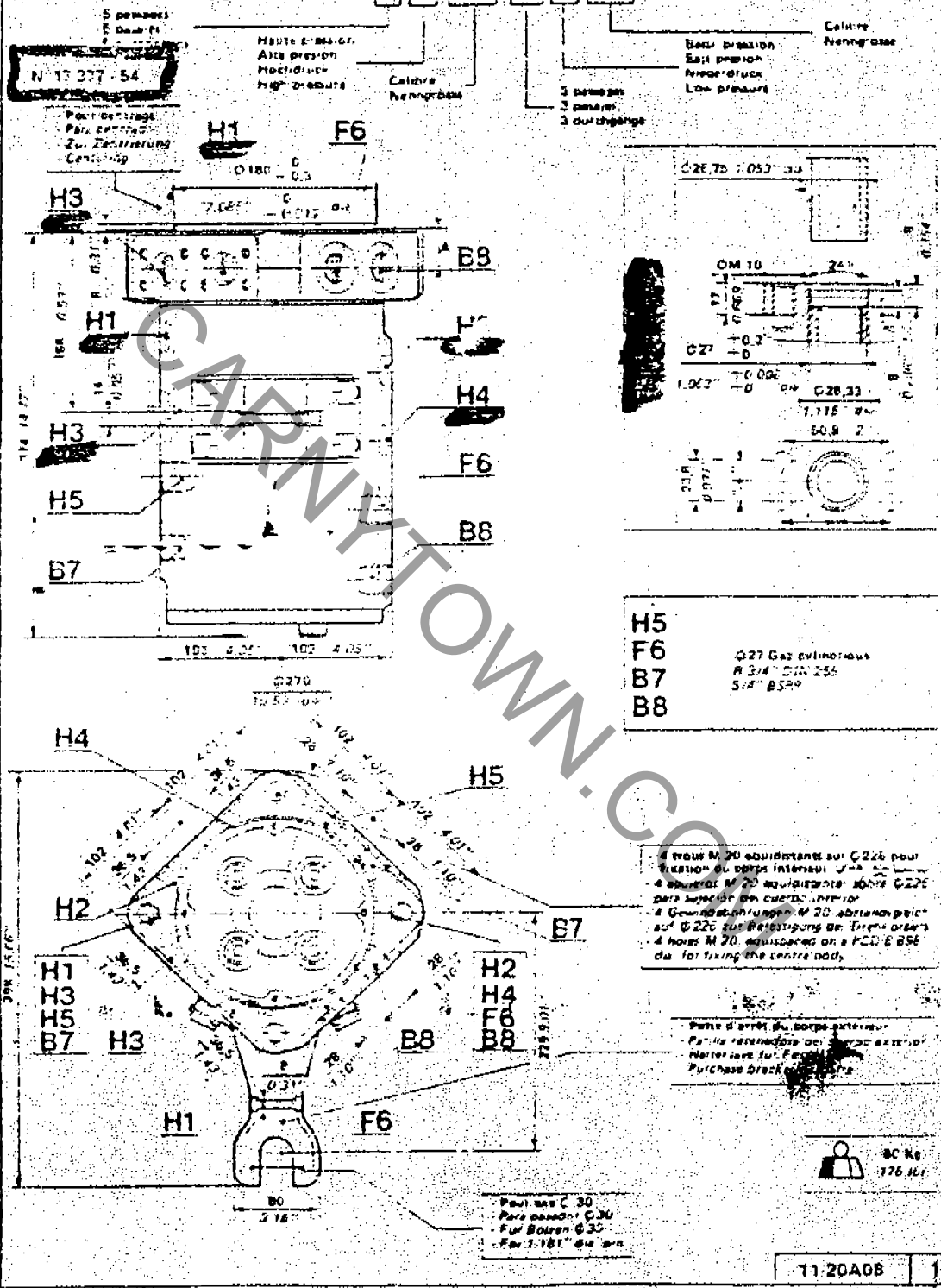
Temperatura normal de utilización - Límites correspondientes
 2.5° E < viscosidad de aceite < 20° E
 15.6 cSt < viscosidad de aceite < 152 cSt
 81.35 SSU < viscosidad de aceite < 726.1 SSU
 A : distancia de los orificios con respecto a la superficie de apoyo de la junta giratoria
 Orificios F6 : retorno de fuga
 B7, B8 : aceite (20 bares) o aire (7 bares)
 Normal working temperature - limits corresponding
 2.5° E < oil viscosity < 20° E
 15.6 cSt < oil viscosity < 152 cSt
 81.35 SSU < oil viscosity < 726.1 SSU
 A : distance from orifice to contact surface of rotary connection
 Orifices F6 : leak return
 B7, B8 : oil (200 PSI) or air (101.5 PSI)

Parte de carga por pasaje - viscosidad } 37 cSt
 Perdida de carga - viscosidad } 5° E
 Druckabfall pro Durchfluss - Ölviskosität } 172 SSU
 Pressure drop - viscosity

Couple d'entraînement
 Par de accionamiento
 Antriebsmoment beim Schwenken
 Drive torque during swing motion



JOINT - T 5 H 20 3 B 20



N 13 277 - 54

Part Design
Part Design
Zur Zeichnung
-Continuing

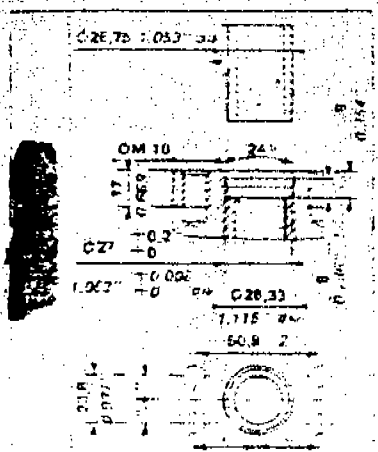
Haute pression
Alta presión
Hochdruck
High pressure

Calibre
Nenngröße

Basse pression
Baja presión
Niederdruck
Low pressure

Calibre
Nenngröße

3 passages
3 passes
3 durchgänge



H5
F6
B7
B8

G27 Gas cylindrical
R 3/4" DIN 255
5.4" B599

4 trous M 20 équidistants sur G26 pour fixation du corps intérieur
4 agujeros M 20 equidistantes sobre G26 para fijación del cuerpo interior
4 Gewinlöcher M 20 abtanzend auf G26 zur Befestigung des Innensockels
4 holes M 20, equidistant on a RCD E 856 dia. for fixing the centre pod.

Partie d'arrêt du corps extérieur
Parte retenedora del cuerpo exterior
Nottor ausl. Fe
Tuchcase block

BC No
176.101

Part no. C 30
Part number C30
Für Bolzen G30
For 1.181" dia pin

T1-20A06 1

1. INSTALLATION

Setup

There is no preferred direction of assembly. However, the motor housing should always be filled with fluid (leak fluid return system = the highest orifice). It is also important to make sure that the supports on which the motors are mounted are flat, to avoid exerting excessive forces on the housing lugs. Make certain that the site selected provides sufficient accessibility to adjust the adjustment shaft, and to connect and disconnect the hoses and lines.

COUPLING BETWEEN THE HYDRAULIC MOTOR AND THE MECHANICAL CONSUMER

The coupling can be in the form of:

- a flexible coupling
 - a rigid coupling
 - a universal-joint coupling
 - a pulley coupling
 - a toothed pinion coupling.
- (See our catalogue of coupling bushings and pinions.)

LINES

- HP supply at L and R using HP hoses.
- Irrigation circuit: Rigid pipe to be connected to the lowest LP orifice (Don't forget the diaphragm – diameter 1 to 3 mm) – on the reheat supply circuit)
- Leaked fluid recirculation: rigid pipe directly to the tank (15 x 21 minimum) – highest orifice
- Displacement control (2-cylinder motors): LP hose
- Brake release control (brake motors): rigid tube diam. 8 x 10 minimum to obtain a correct response time.

Note: When a 2-cylinder motor is used exclusively as a 1 cylinder motor, place the displacement control orifice in the leak recirculation line.

2. STARTUP

Verifications before startup

- HP lines and hoses. (The distributor must never be flange-mounted – make certain to observe the specified curvature values for each size of hose).
- The connections.
- The fluid level in the hydraulic motor housing (via one of the LP orifices).
- The coupling between the hydraulic motor and the mechanical consumer.

TESTS

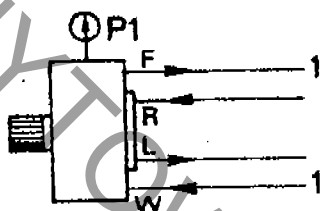
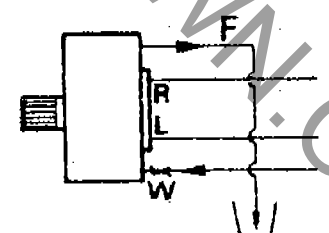
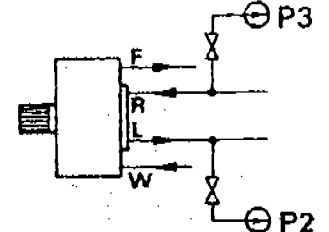
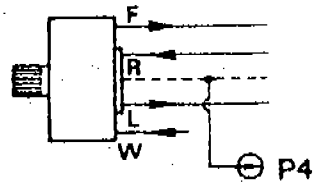

a) At idle

Operate the motor at low speed in both directions of rotation (at 15 to 20% of normal speed).

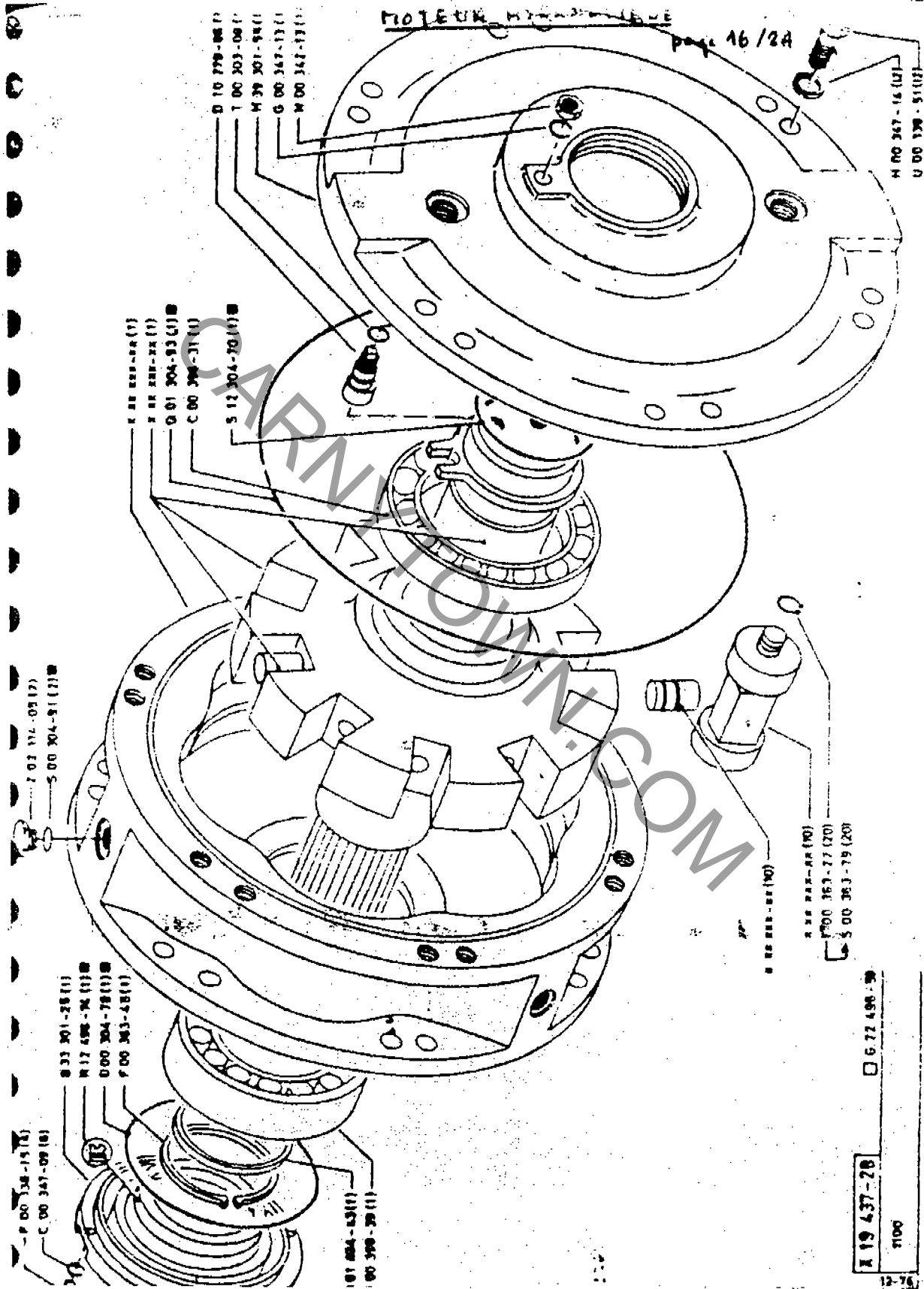
Check:

- the direction of rotation (connection of the lines and hoses),
 - for any external leaks,
 - noises.
- Check the housing pressure $p < 3$ bar (oil cold). Increase the speed of rotation of the hydraulic motor up to the nominal speed.

TESTS TO BE PERFORMED AT OIL TEMPERATURE OF 50° C (122° F)

	<p>HOUSING PRESSURE: $p_1 < 1$ bar</p> <ul style="list-style-type: none"> • 0-4 bar manometer connected to the motor housing • If p_1 is too high, check for leaks at the shaft-side lip seal.
	<p>IRRIGATION CIRCUIT FLOW:</p> <ul style="list-style-type: none"> • 350 to 1,250 motors: 6 l/m • 1500 to 3800 motors: 10 l/m • 4,400 to 6,700 motors: 15 l/m <p>(to be measured at return F – motor supply disconnected)</p>
	<p>BOOST PRESSURE $6 < p_2, p_3 < 15$ bar</p> <p>0-40 bar manometer connected to LP, isolated from HP.</p> <p>Measure p_2, p_3 in both directions of supply.</p> <p>This boost, which is mandatory, makes possible the hydrostatic braking of the motor and prevents the rattling of the rollers on the cam.</p>
	<p>DISPLACEMENT CONTROL PRESSURE (2-cylinder motors) $7 \text{ bar} < p_4 < 30 \text{ bar}$ Manometer 0-40 bar</p>
	<p>BRAKE RELEASE PRESSURE (BRAKE MOTORS) $6 < p_5 < 15$ bar Manometer 0-40 bar</p>

MOJETAH *[illegible]* page 16/24



A 19 437-28
1100
12-76

b) Under load

Measure the temperature (magnetic thermometer) at the following points:

- T1: on the intake pipe on the reservoir,
- T2: on the motor supply flange,
- T3: on the upper part of the cover.

These temperatures must be measured during the operation of the installation, with the motor stopped and then in motion.

The following differences must be obtained:

- STOPPED:
T1-T3 less than or equal to 6°C (42.8° F),
- MOVING:
T2-T3 less than or equal to 6°C (42.8° F).

If these values are not obtained, the irrigation flow must be increased, and if this increase entails an excessive increase in the housing pressure (> 1 bar), it is essential to increase the cross section of the irrigation return lines or to improve their profile.

Measure under operating conditions:

- the operating pressures at the inlet and outlet of the motor,
- the proper operation of the brake, if necessary.

3. MAINTENANCE

No special maintenance is required. Periodically inspect for leaks.

After 100 hours, tighten the bolts that fasten the motor to its support.

TROUBLESHOOTING: Motor Maintenance

INCIDENTS	POSSIBLE CAUSES	REMEDIAL MEASURES
• MOTOR NOISY	1) Motor improperly adjusted	If the motor is noisy, adjust the distributor on the motor
	2) Return circuit pressure too low	Inspect circuit
	3) Cavitation	Increase boost flow
	4) Worn or damaged motor	Repair or replace
• MOTOR TOO HOT	1) Fluid temperature too high	Inspect circuit
	1) No flow	a) Check flow at hydraulic motor b) Check flow at pump c) Check lines and hoses.
• SHAFT DOES NOT TURN	2) No pressure	a) Check pump drive b) Check valve settings c) Check lines and hoses
	3) Driven mechanism blocked	Identify blockage and repair
	4) Worn or damaged motor	Repair or replace
	• ROTATION TOO SLOW	1) Insufficient flow
2) Pressure too low		a) Check pump drive b) Check valve settings c) Check lines and hoses
3) No lubrication of the slide bearings or the joints of the driven mechanism		Lubricate
4) Worn or damaged motor		Repair or replace
• IRREGULAR ROTATION	1) Irregular flow	a) Check flow at hydraulic motor b) Check flow at pump c) Check lines and hoses
	2) Irregular pressure	a) Check pump b) Check lines and hoses
	3) No lubrication of the slide bearings or the joints of the driven mechanism	Lubricate
	4) Worn or damaged motor	Repair or replace
	5) Motor improperly adjusted	Adjust distributor
• SPEED TOO HIGH	Excessive flow	Check pump drive speed
• TORQUE TOO LOW		See incidents: • shaft is not rotating • rotation too slow

REMOVAL OF THE MOTOR

- Eliminate the pressure in the system as follows:
 - make certain that the hydraulic consumers are empty,
 - stop the pump drive motor.
 - move the control levers of the hydraulic consumers forward and backward several times.
- Uncouple the hydraulic motor from its consumer.
- Disconnect the various lines and hoses,
 - loosen the nut on the line or hose,
 - disconnect the line from its connections,
 - unscrew and remove the connection on the motor.If the motor is not replaced immediately, plug up the various orifices on the motor and lines (see table of plugs).
- Pull out the hydraulic motor.
- Drain the housing.

RE-INSTALLATION OF THE MOTOR

Visual inspection

- of the bearing surface of the motor on its support.

Reinstallation

- Install the fastening screws of the motor equipped with new brakes (see table for tightening torques).
- Clean the connections with gas-oil,
- Wipe the joint bearing surfaces,
- Replace the joints: coat the throat or the surface of the connection to provide a footing for the new joint,
- Reinstall the connections (see tightening torques).
- Reinstall the lines and hoses.
- Refill the housing of the hydraulic motor with hydraulic fluid via one of the LP orifices.

REPLACEMENT OF THE SHAFT-SIDE GASKET

Remove the motor, if necessary.

Removal

- Remove the hood fastening screws,
- Remove the hood: detach it if necessary (use a plastic-tipped hammer),
- Remove and discard the gasket and the O-ring.

Visual inspection

- of the surface of the gasket on the shaft,
- of the bearing surface of the joint.

Reinstallation

- Install a new gasket in the hood,
- Install a new O-ring; stick it in place lightly with grease,
- Install the hood, taking care to protect the new joint,
- Install the fastening screws equipped with new washers (see table of tightening torques),
- Reinstall the motor.

REPLACEMENT OF THE DISTRIBUTOR-SIDE JOINTS

Remove the motor if necessary.

Removal

- Mark the position of the cover with respect to the housing,
- Remove the cover fastening screws,
- Remove the cover; detach it if necessary (use a plastic tipped hammer),
- Remove and discard the gaskets; cover and distributor,
- Remove the adjustment shaft (if necessary):
 - loosen then remove the nut.
 - discard the lock nut
 - extract the adjustment shaft
 - remove and discard the joint

Visual inspection

- of the bearing surfaces of the joints,
- of the adjustment shaft.

Reinstallation

- Install a new O-ring on the adjustment shaft,
- Install the adjustment shaft on the cover (take care to protect the O-ring),
- Install the lock nut and the nut, without locking or tightening it,
- Install a new O-ring on the distributor,
- Install a new O-ring on the housing or the cover, as appropriate. (Stick it on with a little grease),
- Install the cover, taking care to engage the adjustment shaft in the adjustment cap of the distributor,
- Install the fastening screws equipped with new washers or lock nuts (see table of tightening torques),
- Reinstall the motor.

ADJUSTMENT OF THE DISTRIBUTOR

The distributor will be too noisy if it is not properly adjusted. It is therefore necessary to adjust the adjustment shaft.

There are 2 methods to do this:

1. Depending on the noise level:

- Rotate the motor in one direction,
- With the nut loosened, orient the adjustment shaft to obtain the quietest operation,
- Perform the same operation while running the motor in the opposite direction,
- Determine the quietest point for both directions of rotation,
- For a 2 C motor, determine the quietest point for both directions of rotation and both cylinders,
- When the quietest point has been identified, tighten the nut,
- Reinstall the lock nut.

2. By measuring the pressure:

The adjustment can be made on the basis of the drive pressure. A manometer is placed as close as possible to the motor on the feeds (LP manometer: 0-40 bar). The optimum adjustment corresponds to a minimum drive pressure with the lowest variations for both directions of rotation (by switching the manometer so that it can be used in both directions on the supply line).

TABLE OF PLUGS AND BLANKS

DIAMETER 5 X 10:	BLANK A 02374.06	
DIAMETER 12 X 17:	BLANK W 00501.59	PLUG Z 00 374.43
DIAMETER 15 X 21:	BLANK V 01377.89	PLUG M 0 1374.13
DIAMETER 20 X 27:	BLANK V 00504.58	PLUG H 00 374.97
DIAMETER 26 X 34:	BLANK F 02374.80	PLUG T 0 2374.69

TIGHTENING TORQUES

	350	600	725	1,100/ 1,250	1,500/2,000 1,750/2,400	2,800/ 3,800	4,400
HOOD SCREW	1	2	2	2	2	4	4
COVER SCREW	4	4	6	11	26	32	38
NUT - ADJUSTMENT SHAFT	3	3	3	3	3	3	3
DRAIN PLUGS	-	7	10	10	10	10	10

CONNECTION TIGHTENING TORQUES

SYSTEM DIAMETER	LOW PRESSURE	HIGH PRESSURE
13 gas cylinder	3	3
17 gas cylinder	5	5
21 gas cylinder	10	10
27 gas cylinder	10	20
34 gas cylinder	10	28

ORIENTATION RINGS

MAINTENANCE - LUBRICATION

ROLLIX

Lubrication is an important factor in the useful life of the gearing and the ball race.

1. GEARING

Depending on the characteristics of the work being performed, we advise the following lubricants:

- Gearing subjected to severe loads and stresses
MOBIL DORCIA 30
- Gearing with normal work
ESSO SURRET FLUID 30 F.

In both cases, before lubrication, the gearing must be cleaned, preferably and especially at the base of the tooth.

A trichlorethylene-base cleaner can be used to clean the gearing.

Frequency of lubrication: approximately once every 75 hours.

Other brands of lubricant can be used, as long as they have lubrication characteristics that are similar to those of the grades indicated above.

See table.

2. BALL RACE

To lubricate the ball race, the lubrication holes are tapped 10 x 100 (endless), a thread that is common in Europe and is particularly well suited:

- for centralized lubrication: Tube 6 or 8 (DIN 2391)
- for conventional lubrication: straight or curved spherical head nipples (AFNOR standards: NFR 165-21 - DIN 3410).

Frequency of lubrication:

- normal work: once every 50 hours
- severe conditions: once every 30 hours

It is important to rotate the ring after lubrication, and then to add more lubricant after rotation.

DUO ROLL-X

- The parts are delivered lubricated: Lubricant: ESSO BEACON 2.

technical documentation	Date: 1978	Section 7	Page 1	X
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ROLLIX	MAINTENANCE – LUBRICATION	ORIENTATION RINGS
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GENERAL INFORMATION

Two different types of lubricant are used for the orientation rings, each of which corresponds to a very specific application:

FOR ROLLER BEARINGS: Lithium lubricant
 Operating temperature: $-30^{\circ} + 150^{\circ}$ *if this is centigrade, it would be $-22^{\circ} F + 302^{\circ} F$*
 Minimum drop point: 175
 ASTM penetration at 25°C (77° F): 260 – 300

FOR GEARING: Extreme pressure lubricant
 BTRA viscosity at 25° C (77° F), minimum 100.

TABLE OF EQUIVALENTS:

BRAND OF LUBRICANT	ROLLER BEARINGS	GEARING
ANTAR	ROLEXA A2	PEBRON ENGRENAGE 1401
BP	LS 2	GR 154 GS
CASTROL	SPHEEROL AP 3	
ELF	TU 2	ELFNERA 4900 X FLUID
ESSO	BEACON 2	SURRET FLUID 30 F
FINA	MARSON EPL 2	
IGOL	ROLLAX EP 2	
LABO	GS UNAX 12	
MOBIL	MOBIPLEX 47 or 67	DORCIA 30
SHELL	ALVANIA GREASE EP 2	CARDIUM EP FLUID H
TOTAL	MULTIS EP 2	
TEXACO	MULTIFAK 2	CRATER 2 X Fluid

Use the chart

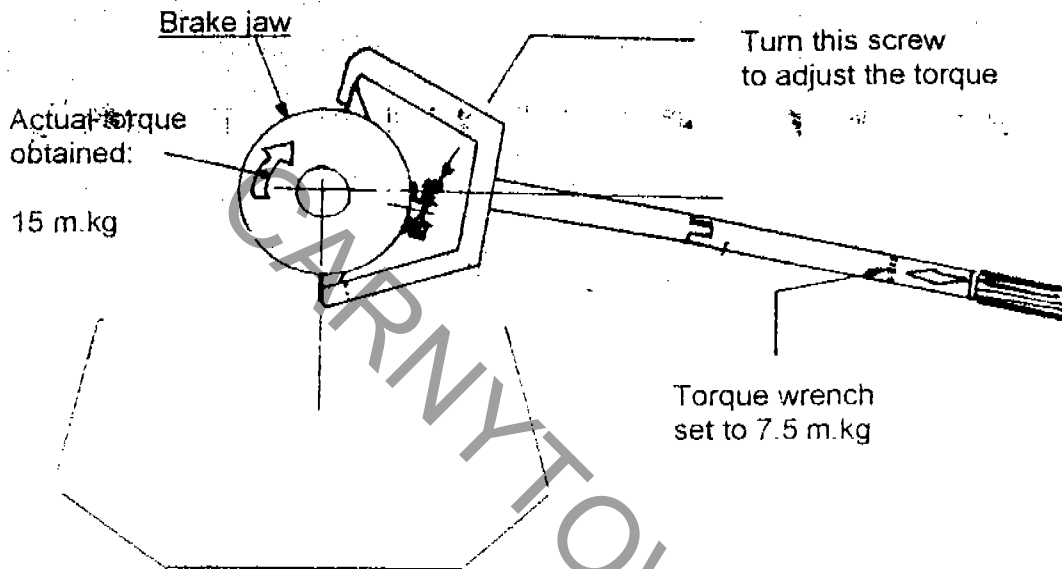
Use the chart
 Recommendations

Use the chart, the chart

EXPLORER:

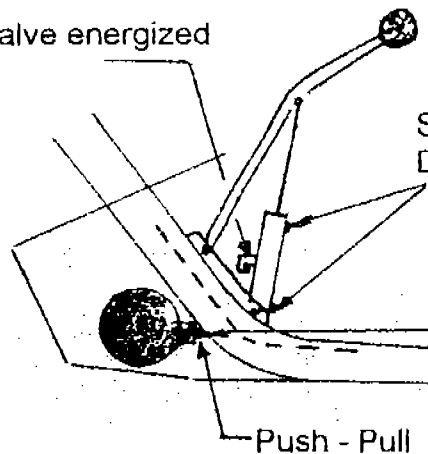
Capsule balancing brake

**S.A. G. REVERCHON
et ses FILS**
Route de Courbuseon
77920 SAMOIS SUR SEINE
Téléphone : 031-81-01
Télex : 880.775



SAFETY BAR: PRESSURE ADJUSTMENT

Solenoid valve energized



Slightly unscrew the bleeds to bleed the air.
Don't forget to close them again.

Use the hand-pump supplied with the unit
Recommended oil: HLP 15

NOTE: During the tuning of the circuit, the solenoid valve must be energized (coil energized = current 24 V)

**VERY IMPORTANT INSTRUCTIONS
FOR THE OPERATORS OF OUR
HYDRAULIC EQUIPMENT**

Mobile Applications

- Any of the oils indicated in the following table can be used when the ambient temperature is higher than at least 12° C (53.6° F).
Please consult our Technical Department when our transmissions must be used at outside temperatures below 12° C (53.6° F).

Table of physical characteristics

Brand	Designation	Viscosity at 50°C (122° F)		Viscosity Index
		(cSt)	(E)	
ANTAR	Transamar A	26.2	3.6	140
B.P.	BP ATF	25.5	3.5	156
ELF	Elfmatic G	29	3.9	167
ESSO	Esso E ATF Dextron	26.2	3.6	156
MOBIL	Mobilfluid 300	24.3	3.39	144
SHELL	Shell Donax T 6	28	3.85	144
TOTAL	Total fluide A	24.5	3.4	143

- In the table, the suppliers of petroleum-based lubricants are listed in alphabetical order with no indication of preference. None of the companies in the table can claim that we use their products exclusively.
- The oil temperature at the hottest point in the system must not exceed 80°C (176° F). In most applications, there must be a heat exchanger to keep the oil temperature below this level.
- If it is necessary to top off the oil in the reservoir, we recommend using the same oil. If the same oil is unavailable, all of the oil must be replaced by an oil rated ATF A. Suffix A.

**VERY IMPORTANT INSTRUCTIONS
FOR THE OPERATORS OF OUR
HYDRAULIC EQUIPMENT**

5. Replacement of the oil in the system under normal operating conditions.
The oil must be replaced at the following intervals:

- a) 500 hours of operation after the first startup.
- b) 2000 hours of operation after the first startup.
- c) thereafter, every 2000 hours of operation, and at least once a year.

Drain the circuit when the oil is hot.

Clean the reservoir. The oil should be replaced more frequently if the ambient atmosphere is dusty.

The oil should be analyzed after each 500 hours of operation.

Note: Please note that it is essential to use one of the oils listed in the table on the preceding page.

6. The paper filter cartridge (Mesh 10 microns) must be replaced after every 10 hours of operation.
(See Chapter VII – Filters)

Quantity of oil in the system: 200 liters

Drawing No. CR 50687 01

Poclain Hydraulics

Scale 1/10

Power Plant H25 60 CH, 280 V, 50 Hz

[Translator's Note: For purposes of translation, the drawing has been divided into blocks that correspond approximately to the layout of the original. The numbers in the following boxes refer to the approximate location of the text.]

1		3			5	
2		4			6	
7	8	9	10	11	12	13

Block 1:

COTE DEMONTAGE CARTOUCHE = Remove cartridge from this side

VIDANGE 34G = Drain 34G

Maxi 220 L = Maximum 220 L

Mini 85 L = Minimum 85 L

Block 2:

REPLISSAGE RESERVOIR M39x1.5 = RESERVOIR FILLING CONNECTION M39x1.5

FIXATION = Fastener

Block 3:

FERMÉ = CLOSED

OUVERT = OPEN

VENTIL. = VENTILATION

Block 4:

DIMENSIONS DES ORIFICES = Dimensions of the Orifices

A B SAE 3000 1" metric screw

E 34 G

C: FOR TUBE 27 RING-NUT SYSTEM

F G 21 G

Block 5:

No.	Code	Designation
1	SUPPLIED BY CLIENT	MOTOR 60 CH, IP 44, B 35 1800 RPM, FA 250 M X.
2	CR44322-210	TRANSMISSION M.P.
3	CR44150-41	PUMP H25 VSCR 119 E KKN 111 (50 + 31 + 18)
4	K00543-35	COOLANT 20.000 K/CAL
5	CR44327-135	FILTER, GAH 90 R 1" 10 μ WITHOUT BYPASS WITH IND 0376 VE 220
6	CR44324-58	MANOSTAT XM2 JM030 SET TO 15 B, RESPONDS TO DROP IN PRESSURE
7	GR44327-92	FILTER BGT 390 TXX8A 5 μ WITH PLUG R13374-65
8	G14505-01	FILTER HH9800 C12 UN RWS
9	CR44324-29	MANOSTAT CT E 1 HH 15 P6
11	CR44345-24	SOLENOID VALVE 90 G
12	CR44327-54	OIL STRAINER 500 L UC SE 1221 90G
13	CR44163-339	DISTRIBUTOR DKS 1714 RAC 24
14	CR44163-142	MODULE KM 011 100/250
15	L20433-07	AR3
17	CR44163-161	MODULE KQ 013 - 150B
18	T04433-88	RH20
19	CR44524-54	ACCUMULATOR 2.5 L. 1HV 2.5/210 8 INFLATED 158

H15.1130 V25437 04

Block 6:

M. AV = FORWARD
 BLOQUÉ = BLOCKED
 Vanne fermée = Valve closed
 noir = black

Block 7:

Electrical Characteristics of the Clogged Filter Manostat, No. 9

- Reversing contact
- C Common
- NC Normally closed
- NO Normally open

Breaking power

	V	AMPERES
DC	12	5
	24	1
	250	0.25
AC	125	10
	250	10

Drawing No. CR 50687 01, Page 3

Block 8:

CONNECTION OF THE PUMP SERVO-VALVE

Borne = terminal

Block 9:

Electrical Characteristics of the Filter, No. 8

NORMAL = NORMAL
COLMATÉ = CLOGGED

POUVOIR DE COUPURE = BREAKING POWER

4 A at 110/220 V AC
5 A at 28 V
1.5 A at 48 V

Block 10:

Electrical Characteristics of the Admission Valve

- Fast-break reversing contact, Model 837 313
- Protection IP 66

- Color of conductors
Black (1 common)
Brown (2 NC) Valve closed
Blue (4 NO)

- Breaking power 5 A – 250 V

WHEN THE VALVE IS CLOSED, THE ELECTRIC MOTOR MUST NOT BE ENERGIZED

Drawing No. CR 50687 01, Page 4

Block 11:

Electrical Characteristics
Manostat XM2 No. 6

- 4 single-pole fast-break contacts
- Protection Class IP 66
- Isolation Group C
- 10 A cartridge fuse to protect against short circuits

Breaking power

	V	W
DC	24	120
	48	70
	220	70
	440	35
	V	VA
AC	24	140
	48	250
	220	500
	380	500

Block 12:

ARLON Filter
No. 5

Breaking power 5 A at 220 V

Block 13:

[Title block]

Modifications:

Date: 04/83 - [Handwritten notation illegible]

Received: REVERCHON, January 19, 1983

Drawn: 10/28/82 by [name illegible]

Scale 1/10 Power Plant H25 60 CH, 280 V, 50 Hz

Poclain Hydraulics