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Instruction manual
for the

PAN-CRUISE
shock absorbers

OLFO-PNEUMATIC SUSPENSION
for
HARLEY-DAVIDSON "Softail"
(all models upto and including 1991)



PAN-CRUISE
SUSPENSION WARRANTY

DETRA PRODUCTION provides a one year guarantee for parts and labour that applies to any defect in manufacturing. It does not apply if the shock absorber has recieved any external damage likely to hinder it's efficient operation (i.e. dents of scratches on the hard chromium sliding tube) and provided it has not been dismantled partially or in whole. Because we cannot control the application of our products, buyer assumes risk for any and all damage caused to himself or third party by virtue of failure of these parts.

Dealer's name :

Dealer's address :

Purchaser's name :

Purchaser's address :

Date of purchase :

Shock reference :

Guarantee must be sent within 10 days of purchase to be honored.

FOURNALES SUSPENSION
REFERENCE BLAMORTISSEUR (AIR TWIN).

APRILIA

REFERENCE	MODELE MOTO	Options	Long.	Pression
E 465240	APRILIA RX ENDURO	C	365	4,6
R 135330	APRILIA TRAIL	C	360	5,4
E 402331	APRILIA ENDURO	C	400	9,4

BFJ

REFERENCE	MODELE MOTO	Options	Long.	Pression
R 155370	BFJ 150	C	325	12

BENELLI

REFERENCE	MODELE MOTO	Options	Long.	Pression
R 155305	BENELLI QUATRO	C	325	10,2
R 155303	BENELLI 250	C	325	10,2
R 155300	BENELLI 100	C	325	10,2

BMW

REFERENCE	MODELE MOTO	Options	Long.	Pression
R 155307	BMW 245	C	325	10,2
R 155307	BMW 655	C	325	10,2
R 155307	BMW 650 S	C	325	10,2
R 155308	BMW 500	C	335	10,2
R 155309	BMW R 205	C	335	10,2
R 155310	BMW R 25	C	345	12
R 155311	BMW R 125 RS	C	345	12

BULTACO

REFERENCE	MODELE MOTO	Options	Long.	Pression
T 140313	BULTACO SHERPA MINI STYPIE	C	340	4,6

CAGIVA

REFERENCE	MODELE MOTO	Options	Long.	Pression
E 405340	CAGIVA RX ENDURO	C	405	10

DUCCATI

REFERENCE	MODELE MOTO	Options	Long.	Pression
R 100340	DUCCATI 250	C	300	7
R 110340	DUCCATI 450	C	370	7,5
R 100320	DUCCATI 450	C	390	8
R 155340	DUCCATI 500 ALASKA	C	390	8
R 120340	DUCCATI 500 ALASKA	C	390	8
R 155340	DUCCATI 600 ALASKA	C	420	8

REFERENCE	MODELE MOTO	Options	Long.	Pression
R 100320	DUCCATI 500 ALASKA	C	320	8
R 100320	DUCCATI 750	C	350	9
R 100326	DUCCATI 750 INDIANA	C	350	10,5
R 155328	DUCCATI 750 DARMIAH	C	352	9
R 100330	DUCCATI 300 GT	C	300	8,5
R 100320	DUCCATI 900 SS	C	390	9
R 100330	DUCCATI 900 SEPIOLA	C	390	9
R 155327	DUCCATI 900 DARMIAH	C	352	9
R 100320	DUCCATI 1000 MHR	C	390	9

FANTIC MOTOR

REFERENCE	MODELE MOTO	Options	Long.	Pression
E 292327	FANTIC 90 REGGIA RITA	C	320	5,5
T 355310	FANTIC 125	C	335	7,2
C 240320	FANTIC 125 CROSS	C	341	8,5
T 355310	FANTIC 200	C	355	9,2
T 350310	FANTIC 250	C	350	9,5
T 350310	FANTIC 300	C	350	9,5

HARLEY-DAVIDSON

REFERENCE	MODELE MOTO	Options	Long.	Pression
FANC 0152	Harley Davidson Sportster	C	325	11,5
R 100322	HD 245 ES	C-M	325	8,5
R 100340	HD 350 ES	C-M	325	8,5
R 155340	HD 350 F HUGELER	C-M	325	8,5
R 145338	HD FXR Low Rider Sport Edition disponible 9491	C-M	325	11,5
R 130327	HD FXR 250 3000r Classic	C-M	320	11,5
R 155325	HD FXR Super Glide 1391	C-M	325	11,5
R 125321	HD XR1200	C-M	325	11,5
R 105340	HD 1200	C-M	325	11,5
R 145341	HD 1200 LOW RIDER	C-M	325	11,5
R 145328	HD FLing 60	C-M	345	14
R 105340	HD 1200 SUPERSTRETCH 1191	C-M	345	8,5
R 105340	HD FLT	C-M	325	11,5
R 105340	HD FXE	C-M	305	11,5
R 105340	HD FXE	C-M	305	11,5
R 125320	HD FXR 87	C-M	305	11,5
R 105340	HD FXRS	C-M	325	11,5
R 105340	HD FXRS 89	C-M	320	11,5
R 105328	HD FXRS 9000r 93	C-M	320	10,5
R 100320	HD WEDGE GLIDE	C-M	320	14
R 100340	HD LOW GLIDE	C-M	310	14,5
R 155320	HD SPORTST	C-M	325	11,5
R 155320	HD SC	C-M	325	11,5
R 145329	HD FL 60	C-M	345	14
R 145320	HD NIGHT TRAIN	C-M	345	14
R 145340	HD NIGHT	C-M	365	15,5



SHOCK ABSORBER MODELS

TO ORDER

Shock absorber reference

AirTwin model for dual shocks



OPTIONS available for dual shocks

Classic



Magnum



Maximal Length (mm) Standard Pressure (bars)

REFERENCE	MOTORBIKE MODEL	OPTIONS	Length	Pressure
R 145300	BMW R100	C-M	345	12

Mention :

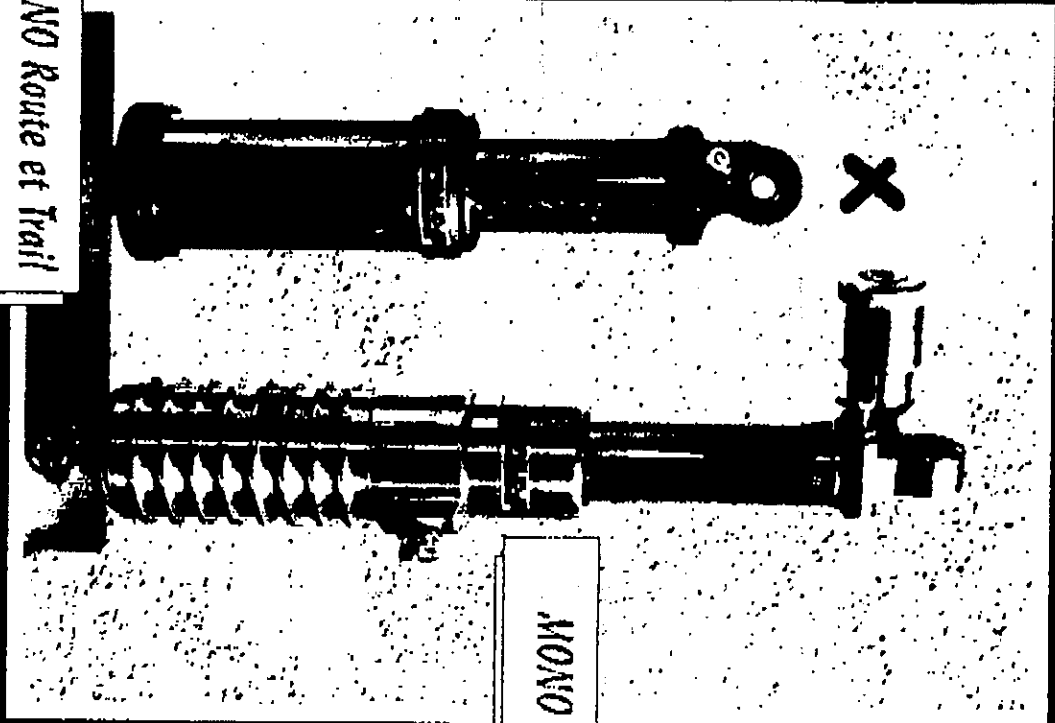
Motorbike model
Shock Reference – Option

Ex: BMW R100
R 145300 for *AirTwin*
R 145300 - C for *Classic*

*For the MONO shock absorbers, there is no specific option
For all type of motorbike or shock model/option not mentioned in the reference list
(for instance : Magnum option available?), please contact us.*

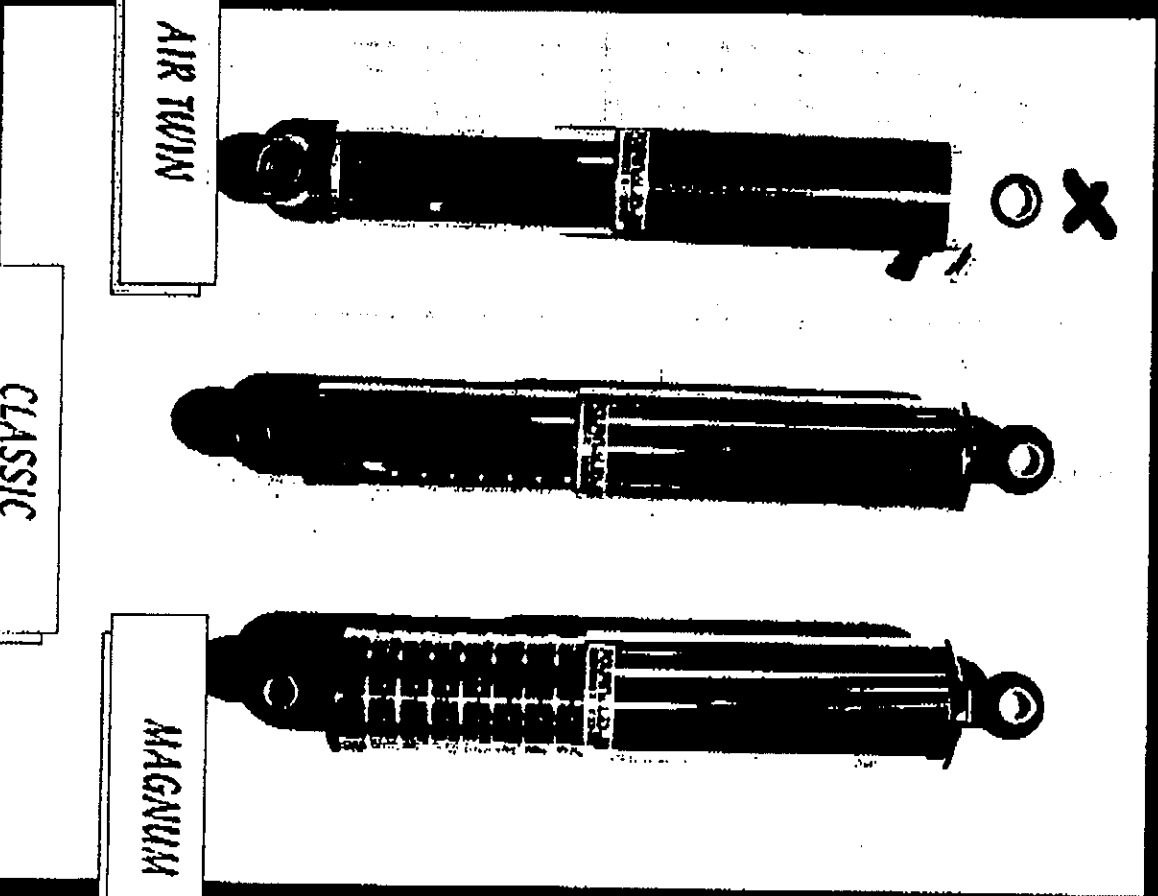
FOURNALES

SUSPENSION



MONO Route et Trail

MONO Enduro



AIR TWIN

CLASSIC

MAGNUM

23 22 80

FOURNALES FRANCE
 23, Z.A. Ribaulte - 31120 QLINT-FONSEGRAIVES
 Tél. 05 61 24 75 20 - Fax 05 61 24 75 25

SARL au capital de 200.000 Frs
 R.C.S. Toulouse B 313 875 706

The FOURNALES SUSPENSION gives you all the best

OUTSTANDING COMFORT

- High sensitivity at the beginning of the stroke (Area A)
- Softness on small shocks (Area B)
- Mechanical bottoming impossible on big shocks (Area C)
- Filtering vibrations : 'air cushion' effect

HIGH PERFORMANCE

- Stiffness fitted by nature to the efforts supported by the wheel
Variable stiffness of the pneumatic spring (Area B to C)
- Road adhesion and traction
Road-to-tyre contact better than for a coil spring type suspension. (Area A)
obtained by smoother damping in compression-rebound transitions
- Incredible weight saving

ADJUSTABLE PNEUMATIC SPRING

The spring is the main parameter in order to optimise a suspension.

The FOURNALES pneumatic suspension features this adjustment.

Caution: *on all 'standard' shock absorbers, there is no need to modify the factory adjustments (pressure, oil, restrictions...).*

- Precise and easy adjustment of the spring by modifying the air pressure (with a high pressure pump)
- Adjustment of the vehicle attitude whatever its loading.
The performance remains the same, even for a vehicle highly loaded. Application : touring bike

LONG TERM RELIABILITY

- High pressure / high performance seals
- All materials, machining and treatments of aeronautical quality
- The shock absorbers can be entirely rebuilt (every 80000Km)

WHAT YOU NEED TO KNOW

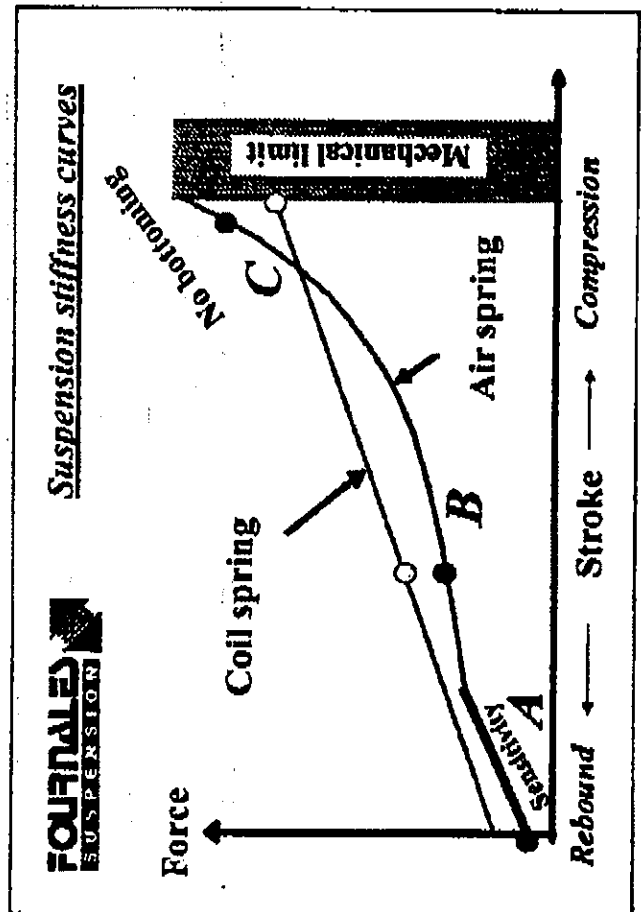
A vehicle suspension generally combines:

- A spring (coil or leaf spring, torsion bar, pneumatic spring...) which supports the vehicle weight.
- A damper (friction, hydraulic) which limits and controls the oscillating movements of the vehicle.

The FOURNALES suspension combines pneumatic spring and hydraulic damper in one shock absorber, so-called hydropneumatic.

This product of high technology results from 20 years of Research and Development, validated in competition.

For each application, the shock absorber we propose has been tested and optimised to guaranty you the best performance.



OPERATING INSTRUCTIONS

- Manipulating the shock absorber : be careful to not damage the sliding tube or the inflating valve.
- The shock absorber must be assembled with the yoke equipped with the air valve to the top.
- When brand-new, the assembly grease can form a ring on the sliding tube. Just wipe it off until it disappears completely.
- A running-in period is crucial for the seal to enable the shock absorber to attain its optimum efficiency (for instance, for a touring bike : about 3000 Km). During this period, the suspension gives the feeling of becoming softer with the same bike attitude.

AIR PRESSURE

- Unless specific instructions, the shock absorbers are supplied inflated for normal solo/duo use. The 'standard' pressure is determined at the factory for each model of motorbike.
- It is not necessary to check or modify the air pressure.
- The pressure should only be altered in the event of specific use:
 - riding with a heavy load (raise the pressure)
 - riding with low load (lower the pressure)
 - or to modify the bike attitude
- Compressed air or nitrogen can be used indifferently.

INFLATING METHOD

Inflation is carried out with a high pressure pump fitted with a pressure gauge and an adapter :

- a quick-fitting adapter for pressures lower than 25bars
- a adapter to be screwed for pressures higher than 25bars.

- If the shock absorber is mounted on the motorbike, the rear wheel must be free of load (bike on central stand)
- If the shock absorber is not assembled, keep it in vertical position, valve up during inflating operation
- Push the adapter on as far as possible and if it is not absolutely airtight, screw up by a quarter of a turn.
- Inflate up to the desired pressure read off the pressure gauge. If the pump has an outlet valve, this pressure can be exceeded. When the needle of the pressure gauge remains stable on the chosen graduation, remove the adapter with a snap.
- Any air escaping when removing the adapter is the air contained in the pump hose. It alters in no way the internal pressure of the shock absorber.

CAUTION: you can not check the inside pressure of the shock absorber by re-connecting the pump. The air of the shock absorber is divided between the shock and the hose, making the pressure to drop. Only a new inflating operation will guaranty the desired pressure.

WARRANTY - AFTER SALES

The warranty is 1 year on all FOURNALES products. The only companies authorised to carry out repairs, maintenance and adjustments are the manufacturer FOURNALES and the local importer. They reserve the right to withdraw the warranty in the event that a FOURNALES shock has been tampered by anyone other than the manufacturer or the importer.

ADJUSTMENT FOR DIFFERENT TYPES OF BIKES:

The empirical rule for the pressure adjustment consists in measuring the displacement of the rear of the bike (above the rear wheel), motorbike at standstill with its weight:

Dual shocks : 25 à 30mm
 Mono Road : 30 à 60mm
 Mono Trail : 50 à 90mm



Installation of the PAN-CRUISE

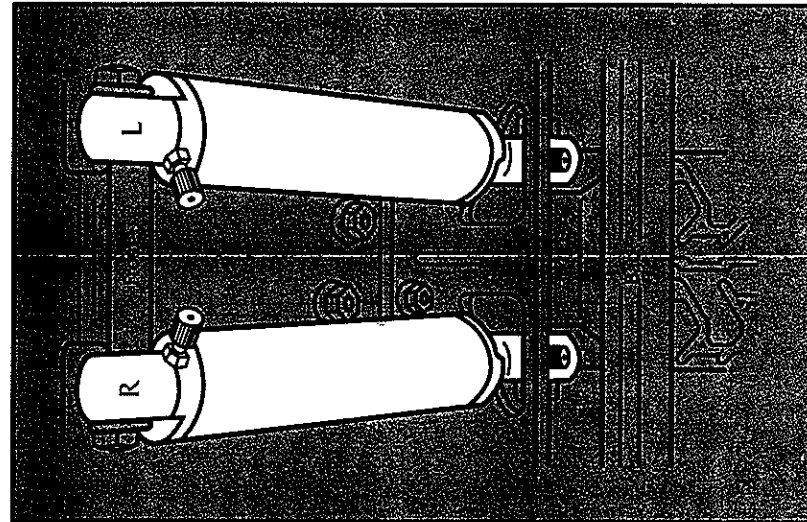
WARNING : Ensure that the motorcycle is correctly supported on a stand with the rear wheel free.

Note that the units are not interchangeable. Each suspension unit is marked either "left" (L) or "right" (R) and must be installed correctly to allow proper adjustment. The units are marked on the end yoke with their left/right designations as the rider sits on the bike.

Do not attempt to install PAN-CRUISE suspension units without the correct tools.

- 1 The motorcycle must be on a flat level and hard surface supported so as to allow the rear wheel to be completely free from the ground. The point of support must not interfere with the free movement and access to both the swing arm and suspension units.
- 2 Remove original shock absorbers strictly in accordance with the HARLEY-DAVIDSON workshop manual.
- 3 Insert the right suspension unit with the small yoke to the rear and with the valve pointing upwards through the triangular cutout in the chassis crossmember. **Do not force.** Once the small yoke has passed through the cutout, rotate the unit 1/2 turn (180°) so that the valve now points downward. Be careful not to knock either valve during installation.
- 4 Install left hand suspension unit as above.

Diagram 3



- 5 Install through bolts through the rear (small) yoke but do not tighten fully.
- 6 Twist the body of each suspension unit so the front (large) yoke aligns with the front shockmount. Raise rear wheel assembly to line up shock absorbers and install through bolts but do not tighten fully.

- 7 Tighten all bolts strictly in accordance with the HARLEY-DAVIDSON workshop manual.

When installation is completed, ensure that :

- The small yoke is mounted towards the rear with the valve pointing to the ground.
- The large yoke is mounted towards the front with the valve pointing inwards and down.
- The front valves are noted above will point towards each other.

This installation should be done very easily. If you encounter any difficulty, do not hesitate to contact your dealer for assistance.

CAUTION : Do not hammer or lever units into position. Do not twist or knock air valves. Serious injury or damage may result.

WARNING : Incorrect installation may result in damage to or loss of control of your motorcycle. Serious injury may result.

To adjust the spring rate

The motorcycle must be on a flat level and hard surface supported so as to allow the rear wheel to be completely free from the ground. The point of support must not interfere with the free movement of the swing arm.

Adjustment of spring rate is achieved by adjusting the pressure **only at the front valve** which is situated on the large yoke of the units.

The spring rate is set by the factory at 25 Bars/365 p.s.i. and is the recommended pressure for average use. Increasing the pressure (maximum 35 Bar/510 p.s.i.) will result in an increase in spring rate (stiffer).

Chronological adjustment operation :

- ① Release air from rear valve.
- ② Set the pressure at the front valve as required.
- ③ Set the pressure at the rear valve (12 bars or more if low riding required).

To adjust the ride height

The bike should be unloaded and without additional equipment. Adjustment of the ride height is achieved by adjusting the pressure **only at the rear valve** which is situated on the small yoke of the units. Contrary to conventional suspensions an increase in pressure will result in a lower ride height. When the PAN-CRUISE units leave the factory, they are set at 12 Bars/175 p.s.i. pressure, optimising the height/ride compromise for one or two up-riding.

Pressure may be varied from a minimum of 8 Bars/115 p.s.i. (for a maximum ride height) to a maximum of 30 Bars/430 p.s.i. (for a minimum ride height). The pressure must be the same in both suspension units.

Standard pressure and weight	Front valve		Rear valve		below standard height and without rider	below standard height and with a 75 kg rider
	Bar / p.s.i.	365	Bar / p.s.i.	12		
↓ Comfort will decrease with lower height	25	365	15	175	0/0 inch	- 21 mm/0,83"
	25	365	20	215	- 3 mm/0,12"	- 26 mm/1,03"
	25	365	25	290	- 19 mm/0,75"	- 32 mm/1,3"
	25	365	30	365	- 27 mm/1,07"	- 40 mm/1,58"
	25	365	30	430	- 40 mm/1,58"	- 51 mm/2"



WARRANTY To be kept

Dealer's stamp

Serie's number

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WARRANTY To be returned

Dealer's stamp

Serie's number

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Introduction

PAN-CRUISE suspension units are delivered already pressurised and are ready for mounting. Do not release air from either valves.

WARNING : Do not adjust the suspension unit or release air pressure unless you have access to a high pressure (35 Bars/510 p.s.i.) air source.

PAN-CRUISE suspension units have been specially designed for the HARLEY-DAVIDSON "Softail" range.

Developed by Jean-Pierre Fourmales using the latest aeronautical technology, "Softail" owners can for the first time, avail themselves of the advantages of oleopneumatic suspension :

- improved suspension control for outstanding high speed control,
- greater comfort,
- the impossibility of bottoming out even two up and heavily loaded.

In addition the unique PAN-CRUISE design for the "Softail" enables the rider to adjust both ride height and spring rate with an air pump and without tools.

PAN-CRUISE suspension units carry a one year unlimited mileage guarantee.

Principles of operation

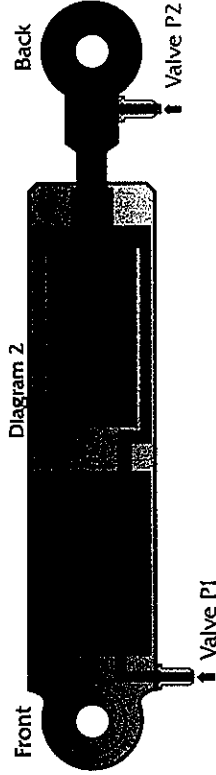
In contrast to regular suspension design, HARLEY-DAVIDSON "Softail" units extend in compression.

When the rear wheel moves from position 1 to position 2, the shock absorbers lengthen (arrow). The shock absorbers are installed horizontally under the engine.

Working principles of the

PAN-CRUISE suspension

- 1 The air pressure at the valve P1 exerts a pression against the ail and provides the suspension stiffness to the shock absorbers. (see Diagram 2)
- 2 The air pressure at the valve P2, by opposing the pressure P1, acts as a pneumatic anti topping spring and a preload adjuster.



Adjustment

WARNING : Do not adjust the suspension unit or release air pressure unless you have access to a high pressure (35 Bars/510 p.s.i.) air source.

CAUTION : The verification of the pressure is only possible during the inflation operation. The exact pressure inside the unit is seen just before disconnecting the pump.

OLEOPNEUMATIC SUSPENSION "PAN-CRUISE"

for Harley Davidson "Softail" motorcycle

INSTALLATION NOTICE

Note:

On the Harley Davidson "Softail" motorcycle the suspension is designed as to have the shock absorber work in extension. They are constantly extended under heavy load and consequently have a tendency to self-align following the axle between the front and rear mounting point.

Installation principle:

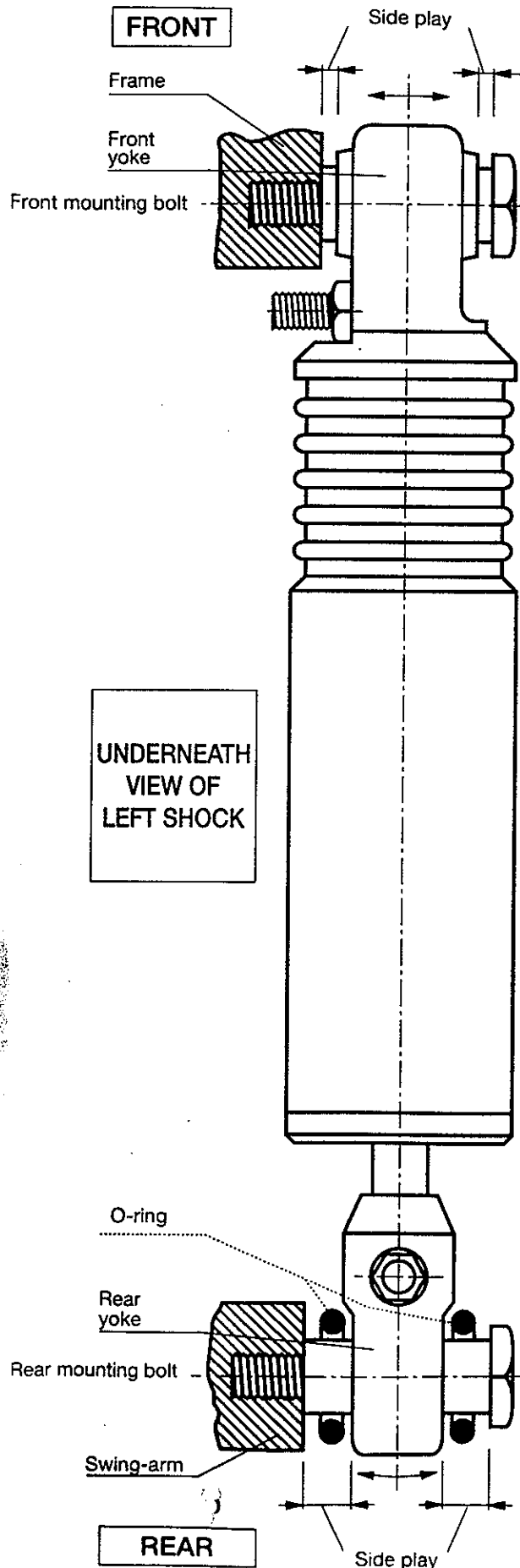
The shock absorber have to be installed freely at the mounting points, as to naturally self-align and not be subject to any lateral force.

INSTALLATION

- Use the original mounting bolts, but discard the washers. Instead use the rubber o-rings provided with the shocks.
- The front yoke should have 1/8" of space on each side.
- The rear yoke should have 1/4" of space on each side.
- Install the shocks following the instruction manual provided with the "pan-cruise". Always make sure that the bolts are tighten strictly in accordance with the Harley Davidson workshop manual. Please do not hesitate to call your Fournales suspension dealer or distributor if you need any assistance.



DELTA PRODUCTION
Albia, ZA Albitech, 81000 Albi
Phone (33) 63 48 14 38



Gewicht
75 kg

Standard pressure and weight	Front valve	Rear valve	below standard height and without rider	below standard height and with a 75 kg rider
	Bar / p.s.i.	Bar / p.s.i.		
<p style="text-align: center;">↓</p> <p>Comfort will decrease with lower height</p>	25 / 365	12 / 175	0/0 inch	- 21 mm/0,83"
	25 / 365	15 / 215	- 3 mm/0,12"	- 26 mm/1,03"
	25 / 365	20 / 290	- 19 mm/0,75"	- 32 mm/1,3"
	25 / 365	25 / 365	- 27 mm/1,07"	- 40 mm/1,58"
	25 / 365	30 / 430	- 40 mm/1,58"	- 51 mm/2"

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BICC SHF 10