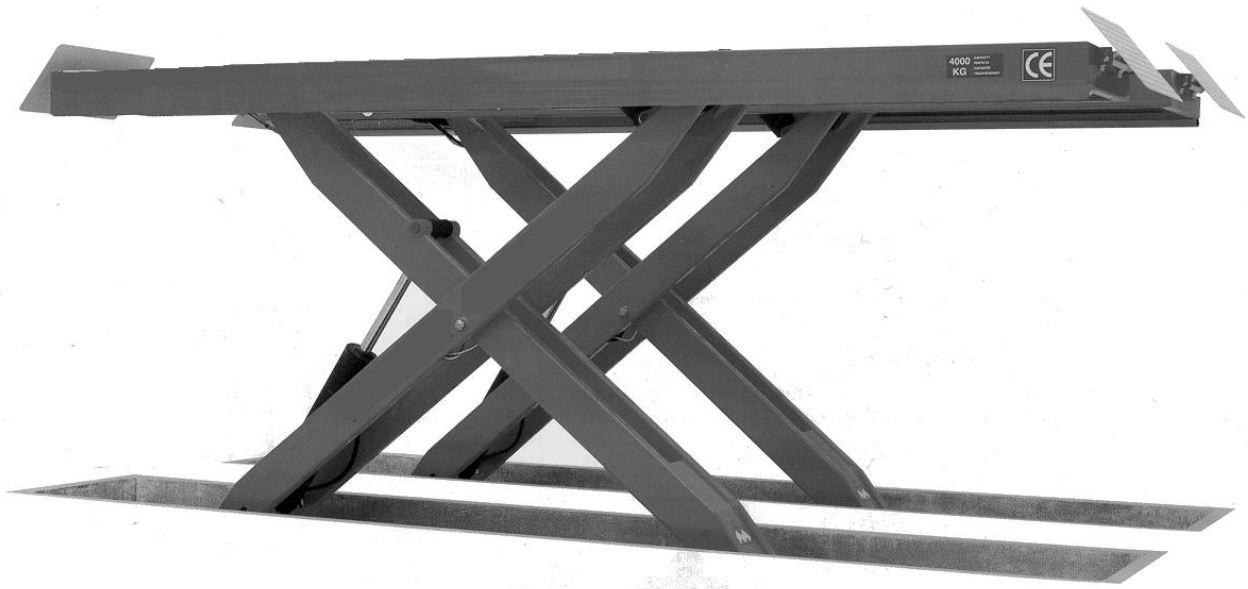
SCISSOR LIFT
WITH RAMPS

OPERATING INSTRUCTIONS

MIRACH
QUARANTA/97

CE



TÜV PRODUCT SERVICE

Rotary®
World Leader in Lift Systems

SCISSOR LIFT

EC DECLARATION OF CONFORMITY

The Company
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Tel. 085/8569058-Fax 085/8569059

DECLARES ON ONE'S OWN RESPONSIBILITY THAT THE EQUIPMENT SPECIFIED BELOW:

TYPE OF EQUIPMENTS: SCISSOR LIFT WITH RAMPS

MODEL: 40N • ; 40NPG • ; 40AT • ; 40ATPG • ; 40LT • ; 40LTPG • ; 40ATLT • ; 40ATLTPG • .

PART NUMBER: .....

TO WHICH THIS DECLARATION IS RELATED, CONFORMS WITH THE FOLLOWING EUROPEAN DIRECTIVES: 98/37/CEE - 73/23CEE- 93/68 CEE - 89/336
IT ALSO DECLARES THAT THE FOLLOWING EUROPEAN RULES HAVE BEEN RESPECTED :
EN 292.1- EN 292.2- EN294-EN 349- EN 1050- EN 60204-1. ETS 300 683 EN 55022B.

Name and address of the approval body: TÜV CERT - Zertifierungsstelle für maschinen
Dudenstraße 28
D-68167 Mannheim
Certificate number: 70/205/10.000102/95
Notifiziert bei der EG Kommission unter Nr. 0047

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(Place and date) (Signature or stamp of the authorized person)

YEAR OF MANUFACTURE				
VOLTAGE	220/380 Vac	220 Vac	240 Vac	110 Vac
Hz	50 Hz	60 Hz		
AUTHORIZED SERVICE CENTER				

CONTENTS

FIRST PART

SECOND PART

(For installer use)

SYMBOLS

□	**HAZARD-DANGER**
□	**PROHIBITED**
□	**WARNING**

Follow the instructions given by the messages preceded by the safety alert symbol

CHAPTER 1- INTRODUCTION - PACKING - TRANSPORT

INTRODUCTION

This manual is written for shop technicians (car lift operators) and maintenance technicians. Before operating these car lifts, please read these instructions completely. This manual gives helpful information about:

- **Safety of people;**
- **Safety of the car lift;**
- **Safety of lifted car.**

This manual is considered to be a permanent part of the lift and must be kept in an easily accessible place so that the operator can find it and refer to it .A careful reading of chapter "3" on safety is recommended.
All versions of "MIRACH 40/97" have been designed and built as required by:
EUROPEAN RECOMMENDATIONS: EEC 98/37/CEE, 73/23/CEE, 93/68/CEE, 89/336/CEE.
EUROPEAN RULES: EN 291/1992, EN 292/1992, EN 294, EN349, EN1050, EN 60204-1, EN 300683, EN 55022B.
Only skilled and previously authorized technicians should be allowed to carry out transport, assembling, setting, maintenance, overhaul, moving, dismantling operations, etc. concerning the lift. The manufacturer is not responsible for possible damage to people, vehicles and objects in the case that said operations are carried out by unauthorized personnel or the lift is used improperly.

□ Read these instructions completely before operating the lift.

□ Always connect the hydraulic and electric system before the pneumatic connection from the lift to the control box is carried out.

□ The lift must be used only for vehicles up to the specified capacity. Any inproper use of this lift is strictly forbidden.

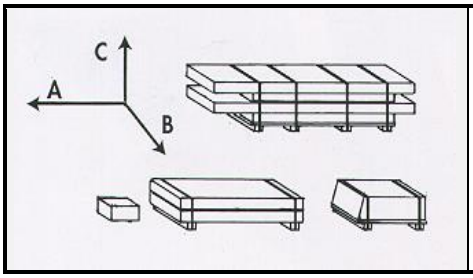
□ Disconnect the lift from the main electric supply before any extraordinary maintenance operation.

□ Lift installation must be carried out as specified by these instructions.

The manufacturer is not liable for possible damage resulting from failure in following the instructions supplied with this car lift.

PACKING

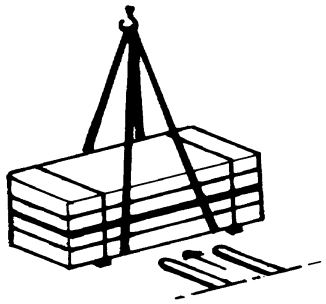
Standard versions of the car lift are pre-assembled and equipped as follows:
2 x bases and platforms (p1-p2) placed on top of each other and sealed with pallet.
1 x control box.
1 x cardboard box equipped with hydraulic/pneumatic connections, metal plates for the setting of dowels and rubber pads if the lift is equipped with lift-tables.
1 x set of lifting ramps, or 4 small ramps (inground version).



Models	A	B	C	A	Models
40N	4320	750	700	4920	40NPG
40AT	4320	750	700	4920	40ATPG
40LT	4320	750	700	4920	40LTPG
40ATLT	4320	750	700	4920	40ATLTPG
Control box	900	500	400	900	Control box
Ramps	1600	750	700	1600	Ramps
cardboard box	400	260	210	-	
	-	300	200	400	cardboard box

TRANSPORT

Packing can be lifted or moved by fork lift trucks, cranes or bridge cranes. In case of slinging, a second person must always take care of the load in order to avoid dangerous oscillations. At the arrival of goods, check for possible damage due to transport. Also verify that all items specified in the delivery notes are included. In case of damage or possible defects in transit the person in charge or the carrier must be informed immediately. Furthermore, during loading and unloading operations the goods must be handled as shown in the illustration below.

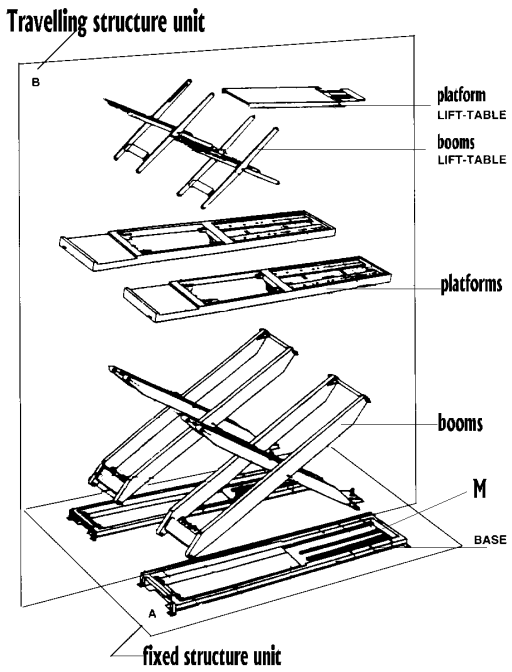


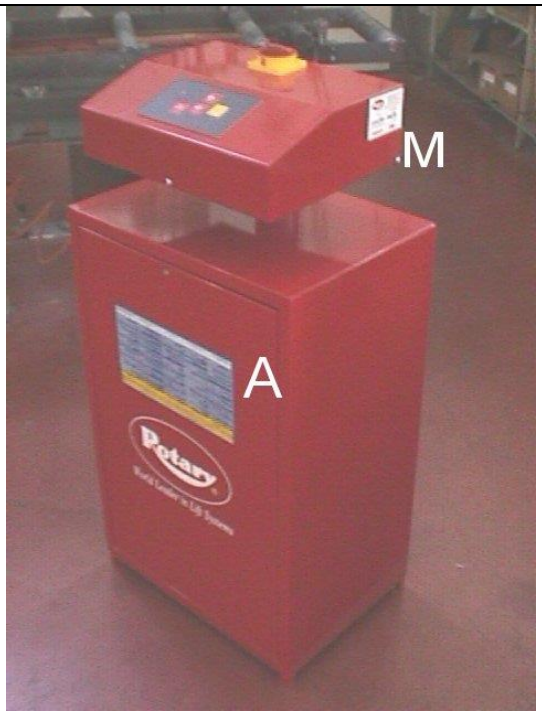
PACKING REMOVAL

Wooden packing can be recycled , in case of packing removal, comply with the applicable regulations in the lift installation country.

CHAPTER 2- MACHINE DESCRIPTION-MODELS-TECHNICAL SPECIFICATIONS

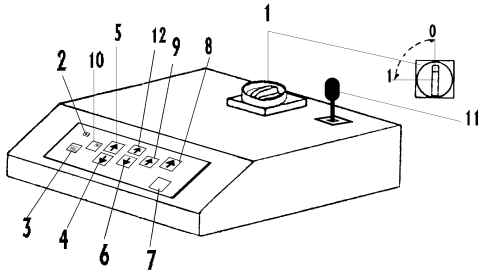
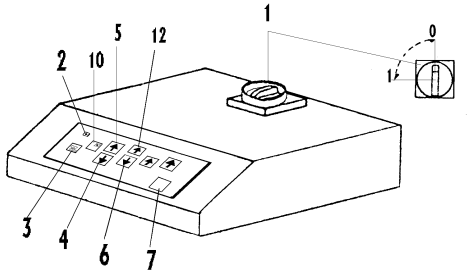
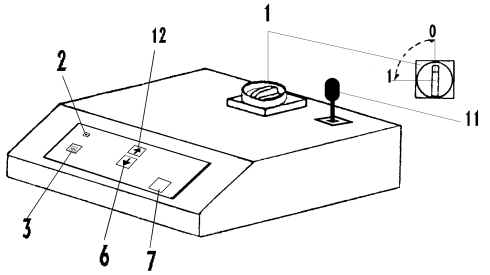
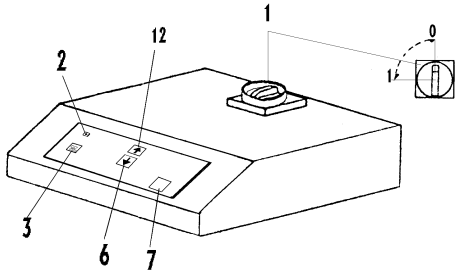
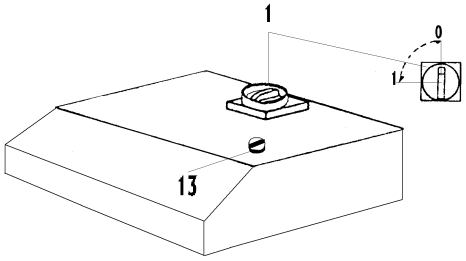
"Mirach 40/97" models are scissor lifts, and fixed to the ground. Car lifts and can be supplied in both surface or recessed inground. They have been designed and built for car, van lifting and placing operations.
Our car lifts are equipped as follows:
A-BASE (Fixed structure unit).
B-BOOMS, PLATFORM (AND LIFT TABLE) (Lifting and travelling structure unit).
C-CONTROL BOX



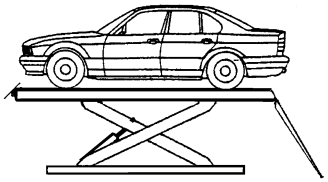
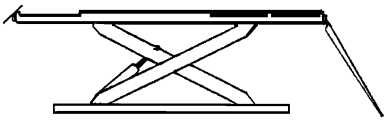
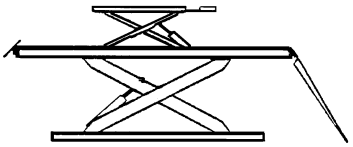
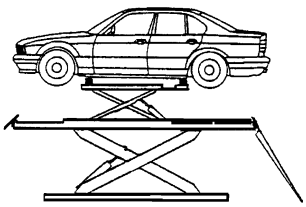
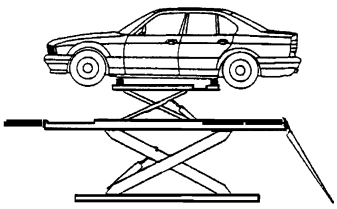


A: NOTICE
M: SERIAL NUMBER

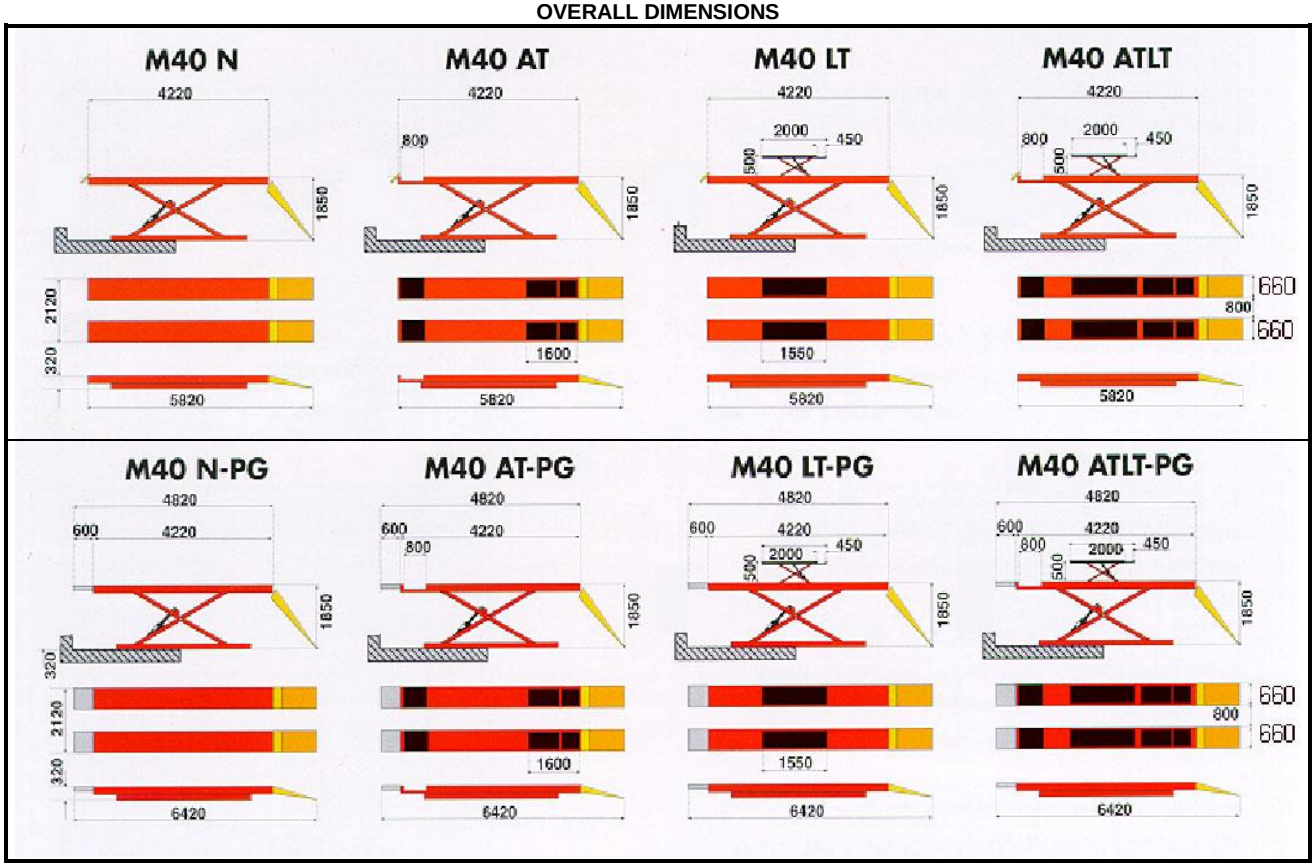
Fixed structure unit.
This is the car lift base, made of steel sheet with floor fixing holes.
Lifting and travelling structure unit.
This is made of box-type steel sheet booms. The upper platform is made of longitudinal steel tubes linked to each other by vertical rods anchored to the booms by steel pins at fixed points, and by rollers in the movable ones. The lifting system links are equipped with self-lubricating bushings where maintenance is not required.
Control box.
The metallic box unit contains the oil tank, pump, motor, hand pump and electro-valve sets.There are also power and hydraulic supply connections. Low-voltage controls (24V) are placed on the power unit as follows:

1- MAIN SWITCH **2- PILOT LAMP FEED** **3- MECHANICAL SAFETY DEVICE OPERATION** **4- LIFT TABLE LOWERING** **5- LIFT TABLE LIFTING** **6- LIFT LOWERING** **7- LIMIT SWITCH CUT OUT (EMERGENCY)** **8- FIRST PRE-DETERMINATE WORK STOP** **9- SECOND PRE-DETERMINATE WORK STOP** **10- LIGHT SELECTOR** **11- SLIDING PLATE SELECTOR** **12- LIFT RAISING**	**M40 ATLT** 
1- MAIN SWITCH **2- PILOT LAMP FEED** **3- MECHANICAL SAFETY DEVICE OPERATION** **4- LIFT TABLE LOWERING** **5- LIFT TABLE LIFTING** **6- LIFT LOWERING** **7- LIMIT SWITCH CUT OUT (EMERGENCY)** **10- LIGHT SELECTOR** **12- LIFT RAISING**	**M40 LT** 
1- MAIN SWITCH **2- PILOT LAMP FEED** **3- MECHANICAL SAFETY DEVICE OPERATION** **6- LIFT LOWERING** **7- LIMIT SWITCH CUT OUT (EMERGENCY)** **11- SWINGING PLATE SELECTOR** **12- LIFT RAISING**	**M40 AT** 
1- MAIN SWITCH **2- PILOT LAMP FEED** **3- MECHANICAL SAFETY DEVICE OPERATION** **6- LIFT LOWERING** **7- LIMIT SWITCH CUT OUT (EMERGENCY)** **12- LIFT RAISING**	**M40 N** 
ALL LIFTS (WITH PLAY DETECTOR) **13- PLAY DETECTOR SELECTOR**	

1-Main switch; When in “0” position lift is not powered. The switch can be padlocked to prevent the use of the lift during maintenance. In position “1”: the lift is powered.
2-Pilot lamp feed; Indicates that the control board is powered.
3-Mechanical safety device operation; when pressed, mechanical safety is engaged.
4-Lift table lowering; By pushing this button, the motor starts running and all the mechanisms involved in lowering the lift-table start working.
5-Lift table raising; By pushing this button, the motor starts running and all the mechanisms involved in raising the lift table start working.
6-Lift lowering; When pressed, motor and lowering mechanism are operated.
7-Limit switch cut out (emergency); By pushing this button, the electrical limit switches and the photoelectric cell are cut out.
8-First pre-determinate work stop; By pushing this button the lift positions immediately into mechanical safety at the first pre-determinate work stop set (about 1 mt.).
9-Second pre-determinate work stop; By pushing this button the lift positions immediately into mechanical safety at the second pre-determinate work stop set (about 1,70 mt.).
10-Light selector; This selector activates lighting installation (220V or 24 V).
11-Swinging plate selector; Manually operated, “sliding plates” are locked when this device is operated.
12-Lift raising; When pressed, motor and lifting mechanisms are operated.
13-Play detector selector; This selector actives the hydraulic play detector (where provided).
Mirach 40 scissor car lifts are suitable to lift any kind of car and van where weight does not exceed 4000 kg. The height is adjustable so that it can be easily and safely operated as requested. Some versions are equipped with auxiliary lifting (lift-table) with the same capacity of the main platform. Lift tables are particularly useful to free the wheels from the platforms and allow access to any mechanical element. Our range of scissor car lifts can meet any demand of car repair, tyre dealers, body repairmen and from all those who work in this field, according to the models they choose.

	**MIRACH 40N** Standard version, with smooth lifting platform only.
	**MIRACH 40 AT** Version for total alignment.
	**MIRACH 40 LT** Version with lift tables.
	**MIRACH 40 ATLT** Version for total alignment with lift tables.
	**M40 NPG-ATPG-LTPG-ATLTPG** All version can be supplied with play-detector (if requested).

OVERALL DIMENSIONS



WARNING: "MIRACH 40/97" car lift has been designed and built to lift and place cars in closed areas. Any other use is forbidden, and particularly, the following operations cannot be performed:
-VARNISHING -LIFTING OF PEOPLE OR SCAFFOLDING -SQUASHING PRESS -CAR JACK OR WHEEL REPLACEMENT.

CHARACTERISTICS

- **Low-voltage controls (24V) with touchpad control**.
- **Hydraulic-volumetric synchronism of the platforms**.
- **Acoustic signal at lift or lift table stop and duringthe last lowering cycle**.
- **Hydraulic safety system for the lift table.**
- **Hand lowering device in case of power failure.**
- **Double auto-levelling platform device.**
- **Safety valve in case of hydraulic failure**.
- **Mechanical safety device for the lift.**
- **Automatic research of two adjustable pre-determinated work stops. (ATLT)**

TECHNICAL DATA

• Operation	Electro-hydraulic.
• Capacity	4.000 kg.
• Weight	From 1.500 to 2.700 kg.
• Lifting time	45 sec.
• Lowering time	45 sec.
• Max. lifting height	1850 mm.
• Motor	3ph 3kw 220/380V 50Hz.
• Motor for lift with play detector	3ph 4kw 220 50Hz - 380 50Hz
• Noise level	<76 dB.
• Working temperature	-10°/+50°.
• Working max pressure	240 Bars
• Pneumatic feed	4/8 Bars

The direction of the motor is clockwise, as shown on the lable placed on the motor.

CHAPTER 3 - SAFETY

Read this chapter carefully. It contains important information concerning safety of the operator. The operator and maintenance personnel are required to observe the prevention accideny legislation in force in the Country where the lift is installed.

1 During lifting or lowering operations, the lift must be operated only from the operator area as shown in the diagram.

2 Stopping or passing within the danger area is strictly forbidden when the lift is working or raised. Only the operator is allowed to stay under the lift.

3 The operator must be sure the hazard area is clear when raising or lowering the lift

4 Never use the lift without protection or when safety devices are off-line.

5 Switch off the engine and engage the parking brake once the vehicle is on the car lift; furthermore, disengage the shift lever and move it to the “neutral” position.

6 To prevent the vehicle from falling make sure it is properly placed on the lift.

7 It is strictly forbidden to get in the vehicle or start the engine when the car lift is raised.

8 Never leave objects and-or obstructions under the vehicle or scattered on it during the lowering phase.

9 Keep the area under/next to the lift clear and remove possible oil spots in order to avoid slipping risk.

10 Never use water-steam-varnish-solvent jets in the lift area, and particularly, near the control box.

11 Proper lighting is extremely important. Make sure the area around the car lift is smooth and uniform, according to specified by the applicable laws of the place of installation.

12It is strictly forbidden to climb on the platforms when lifting or lifted.

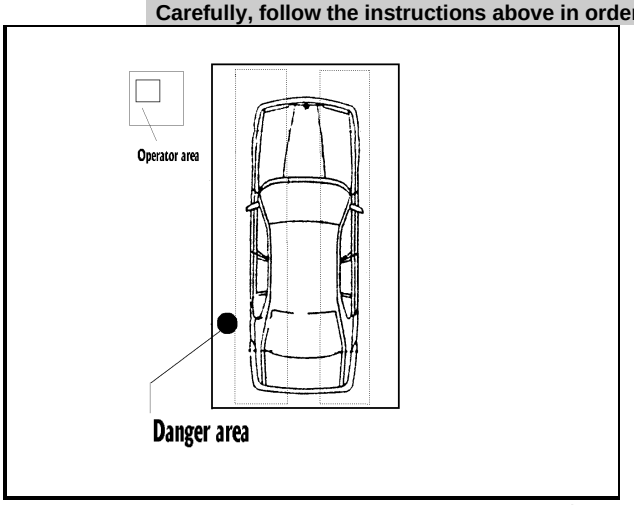
13 Any use of the lift other than what herein specified can cause serious accidents to the operators and/or to the people near it.

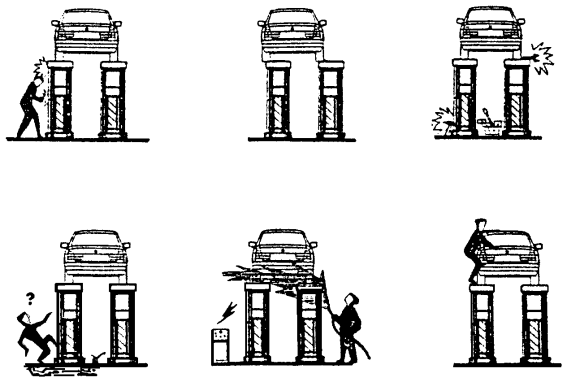
14It is strictly forbidden to tamper safety devices

15 Never exceed the maximum capacity of 4000 kg. when using the car lift or the lift table. Check the vehicle weights before lifting.

16 Always use the rubber pads when using the lift-tables, reference should be made to the vehicle manufacturer lifting point markings on the vehicle.

17 **In case of anomaly, stop the car lift and block the on/off selector by using a padlock. Only skilled technicians should be allowed to restart the lift. Be sure the power supply is off before repairing and/or servicing the lift. Carefully, follow the instructions above in order to avoid danger to people and/or damage to vehicles, lift.**





SAFETY DEVICES

- **SAFETY VALVE FOR AUTOMATIC LOWERING CUT OUT;** Normally open two- way safety valves. They are able to automatically lock a single or double-acting cylinder in case a sudden increase in velocity occurs. The valves are located inside the cylinders and prevent the load from falling down in case of sudden pipe bursting or cutting.
- **DEAD-MAN CONTROL;** The car lift is equipped with a dead man control. Lowering and lifting operations are stopped immediately by releasing push button controls.
- **MECHANICAL SAFETY;** Pneumatically operated pivotbrackets (welded to the arms) which have teeth that lock in the ladder rack (welded in the base frame).
- **PHOTOELECTRIC CELL;** This device automatically blocks the lifting or the lowering of the lift in case a ± 50 mm. out of level of the platforms occur or in case an obstacle is put between the two platforms therefore creating a dangerous situation.
- **HYDRO-OPERATED SAFETY VALVES;** They are assembled on the lift table pistons.
- **ACOUSTIC SIGNALLING;** This is an intermittently acoustic signal which is operated automatically during the raising and/or lift table lowering when these are at about 40 cm. from the fully lowered position, or it is operated by the exclusion button. **(In this case all the operations must be done very carefully).**

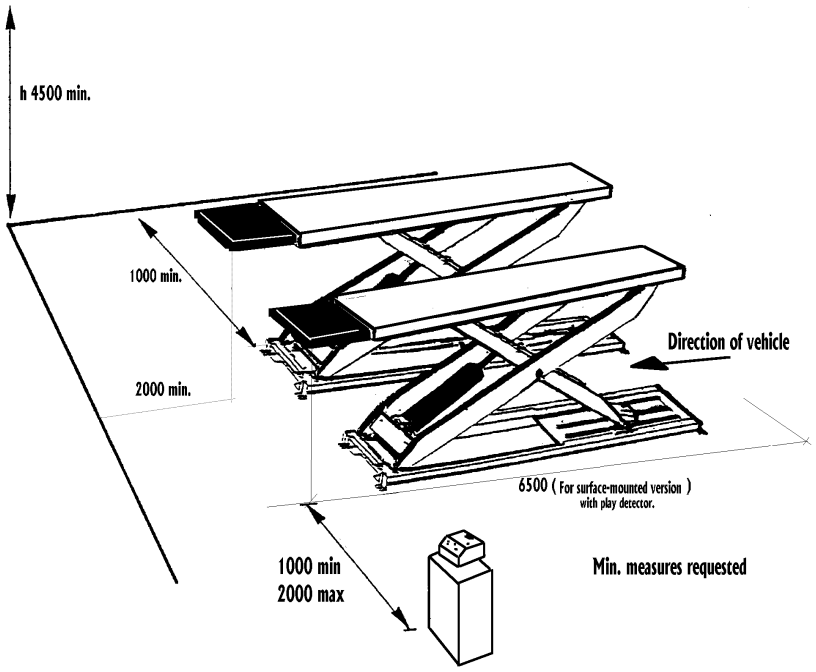
CHAPTER 4- INSTALLATION

 UNPACK THE GOODS AND CHECK FOR POSSIBLE DAMAGE BEFORE INSTALLING THE LIFT.
 ONLY SKILLED TECHNICIANS, APPOINTED BY THE MANUFACTURER, OR BY AUTHORIZED DEALERS SHOULD BE ALLOWED TO INSTALL THE CAR LIFT. SERIOUS DAMAGE TO PEOPLE OR EQUIPMENT CAN BE CAUSED IF THIS RULE IS NOT FOLLOWED.
The lift must be installed according to the specified safe distance from walls, columns, other equipments etc. The roof must be minimum 4500 mm. in height. The minimum distance from the walls must be 1500 mm. take into consideration the necessary space to work easily. Further space for the control site and for possible walkways in case of emergency is also necessary. The lift can be placed on any floor, as long as it is perfectly levelled and strong enough. (250 x cm²).

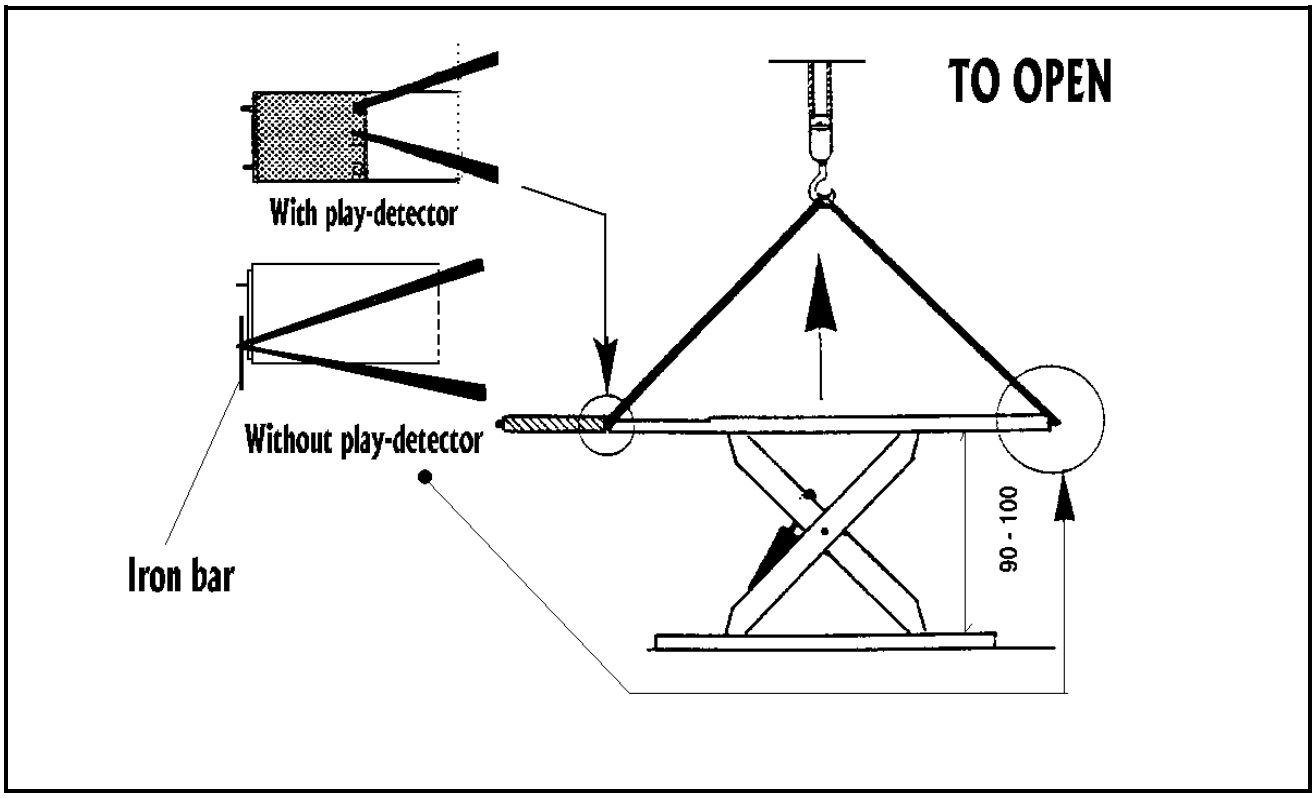
INSTALLATION PROCEDURE
1. **Lift location.**
2. **Power supply and pneumatic feed availability.**
3. **Electric connections.**
4. **Hydraulic connections.**
5. **Electric network connection.**
6. **Lift fixing.**
7. **Initial running.**

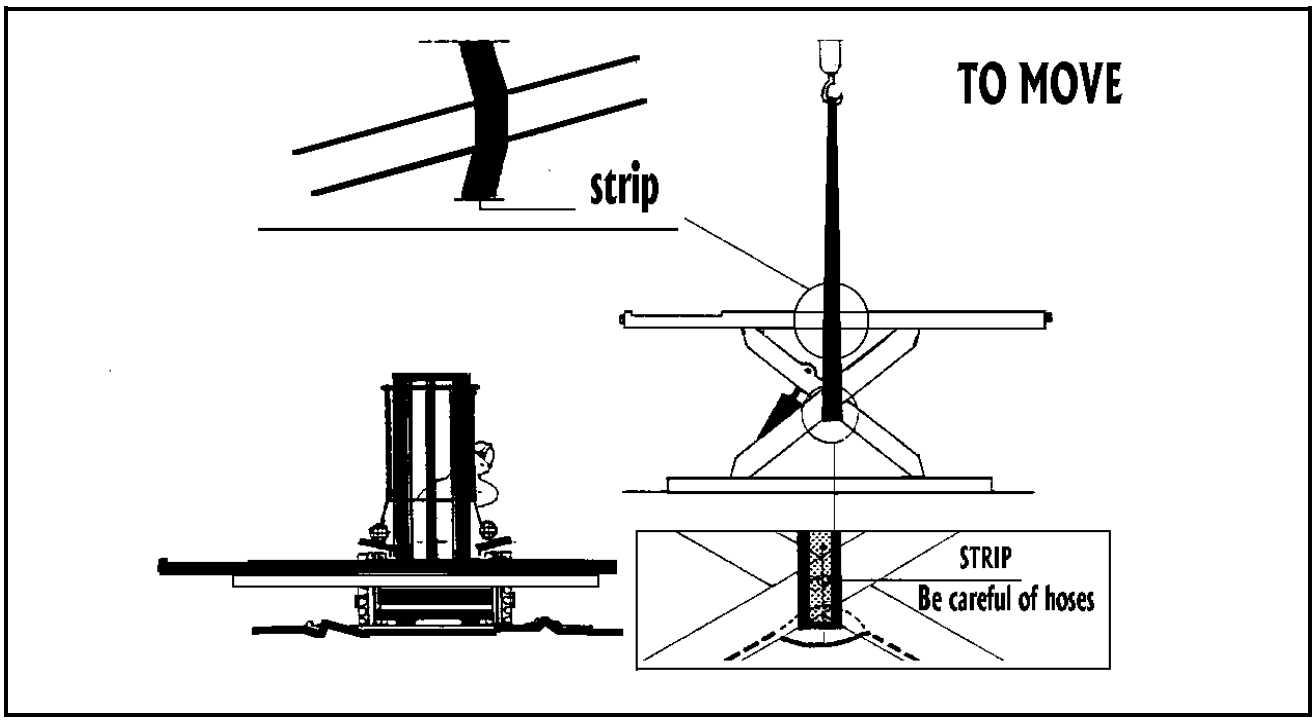
1) POSITIONING OF THE LIFT

Put the adjustable screns in their seats which are situated under the bases before installing the lift. Raise the platforms by using a crane (in order to open the lift) up to at least 100 cm. and be sure that the mechanical safeties are locked. Sling the lift as shown in the illustration below in order to position the unit. If necessary put metal sheets under the bases in order to level perfectly.



CAUTION! Once installing site has been chosen, it is necessary to follow the regulations on safety and eventually other requested regulations on where and how to use the lift. The operator should be able to control the whole lift and the area around it from the operating position, and he has to prevent danger by keeping unauthorized personnel and/or objects standing in this area.


TO OPEN
With play-detector
Without play-detector
Iron bar
90 - 100


TO MOVE
strip
STRIP
Be careful of hoses

2) CHECK POWER SUPPLY AND PNEUMATIC FEED AVAILABILITY.
The siting must be previously prepared for the power supply of the lift. Make sure that the power and pneumatic feed is not far from the power unit.

3) ELECTRIC CONNECTIONS
The cables are supplied with numbered connectors (see illustration), which are to be hooked to corresponding numbered connectors of the electric card (PCB).

DIAGRAM OF MICRO-SWITCH LOCATION M 40N-AT

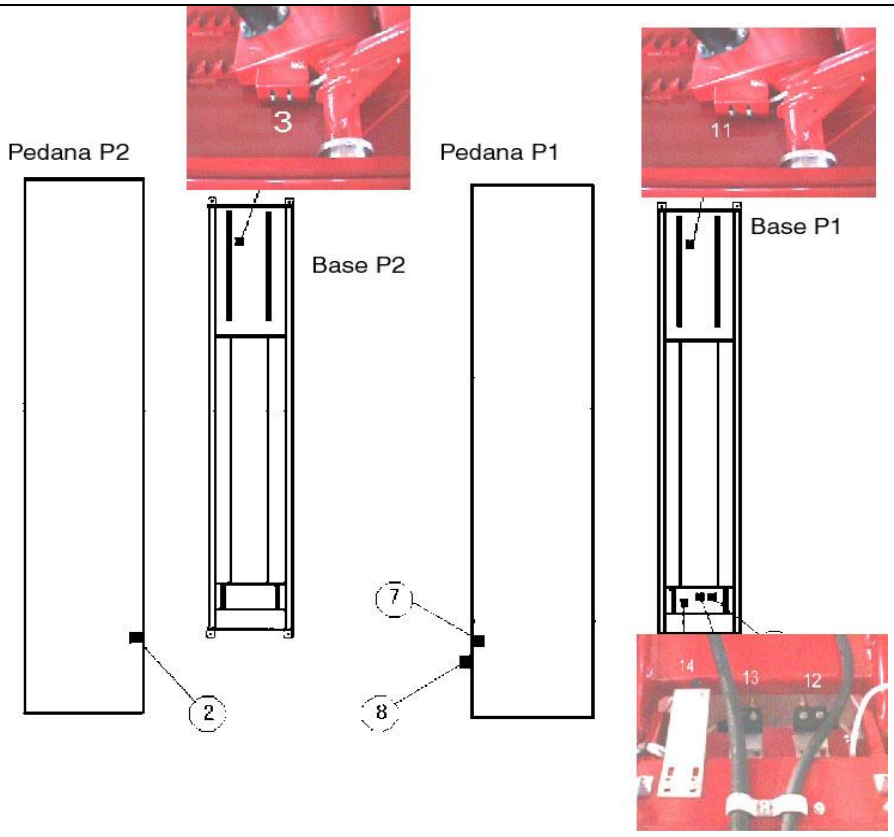
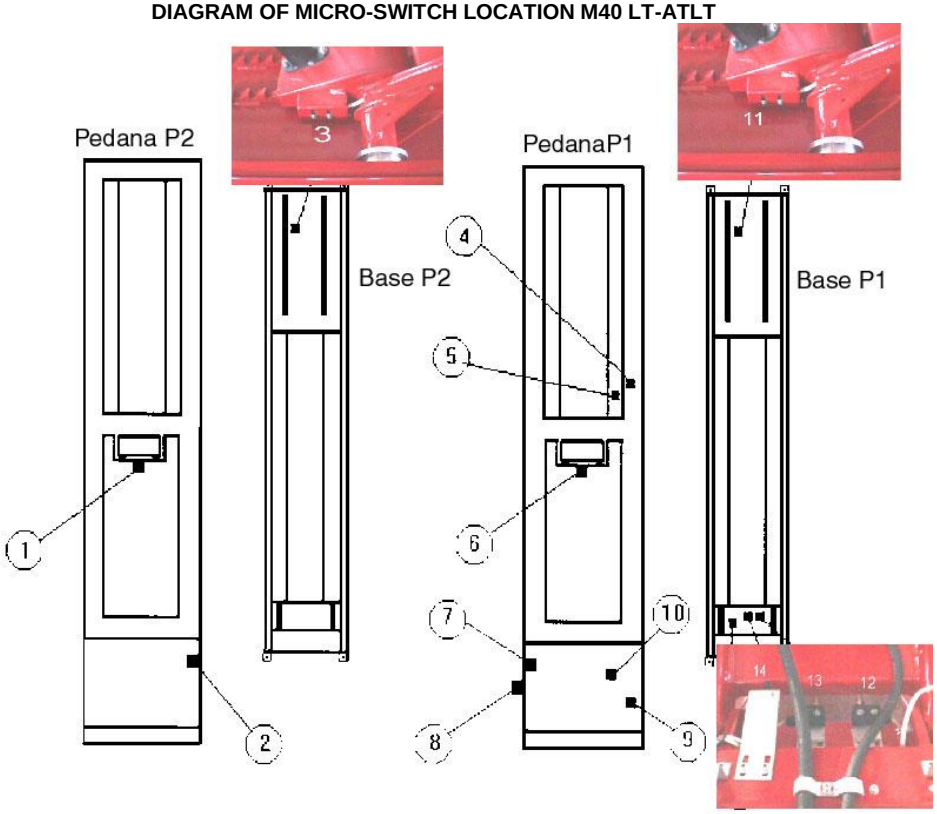
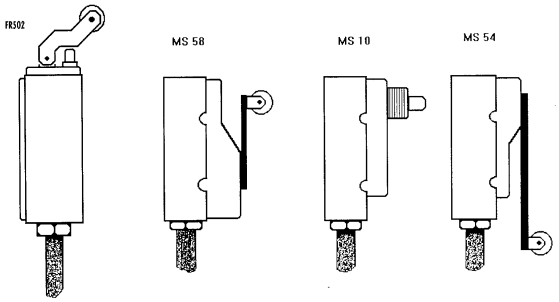


DIAGRAM OF MICRO-SWITCH LOCATION M40 LT-ATLT

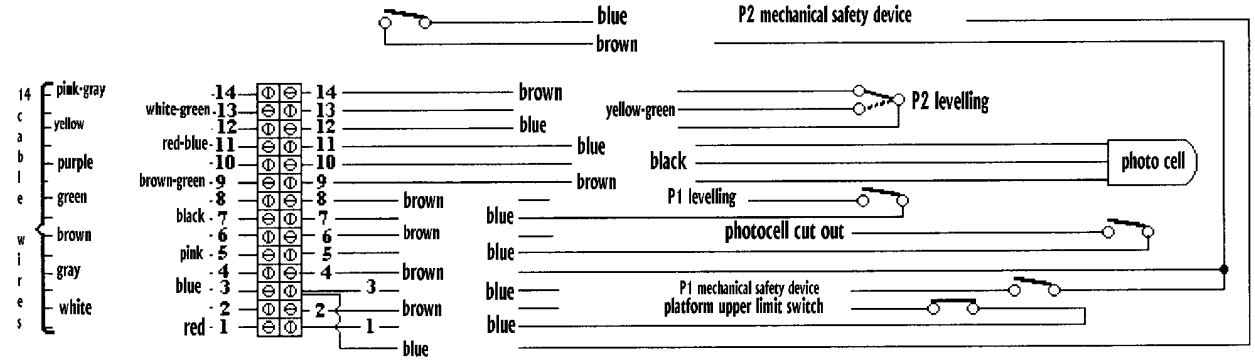




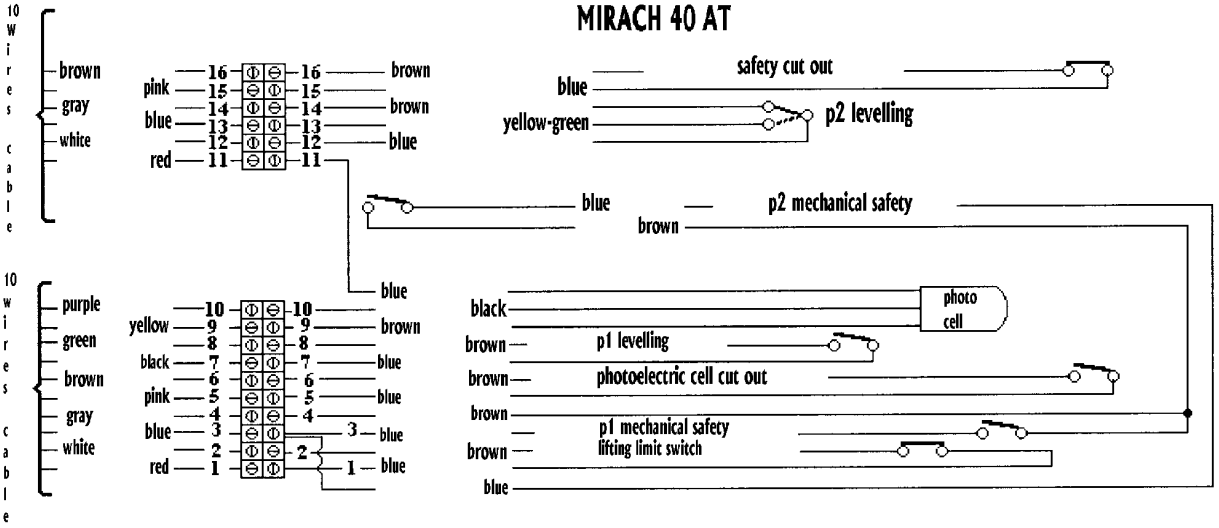
POS.	CODICE	TIPO	M40N	M40AT	M40LT	M40ATLT	DESCRIPTION
1	06-6135	MS10			▯	▯	P2 LIFT TABLE EXTENSION MICROSWITCH
2	06-6135	MS10	▯	▯	▯	▯	P2 PLATFORM SYNCHRONISM MICROSWiTCH
3	06-6508	MS54	▯	▯	▯	▯	P2 PLATFORM MECHANICAL SAFETY M/SWITCH
4	06-0302					▯	FIRST PRE-DETERMINED WORK STOP
5	06-0302					▯	SECOND PRE-DETERMINED WORK STOP
6	06-6135	MS10			▯	▯	P1 LIFT TABLE EXTENSION MICROSWITCH
7	06-6135	MS10	▯	▯	▯	▯	P1 PLATFORM SYNCHRONISM MICROSWITCH
8	06-6691	1812	▯	▯	▯	▯	PHOTO ELECTRIC CELL
9	06-6135	MS10			▯	▯	LIFT TABLE LOWERING LIMIT SWITCH
10	06-6052	MS58			▯	▯	LIFT TABLE LIFTING LIMIT SWITCH
11	06-6508	MS54	▯	▯	▯	▯	P1 PLATFORM MECHANICAL SAFETY M/SWITCH
12	06-6135	MS10	▯	▯	▯	▯	PLATFORM MECHANICAL SAFETY DEVICE CUT OUT
13	06-6135	MS10	▯	▯	▯	▯	PHOTOELECTRIC CELL CUT OUT
14	06-6034	FR502	▯	▯	▯	▯	PLATFORM LIFTING LIMIT SWITCH

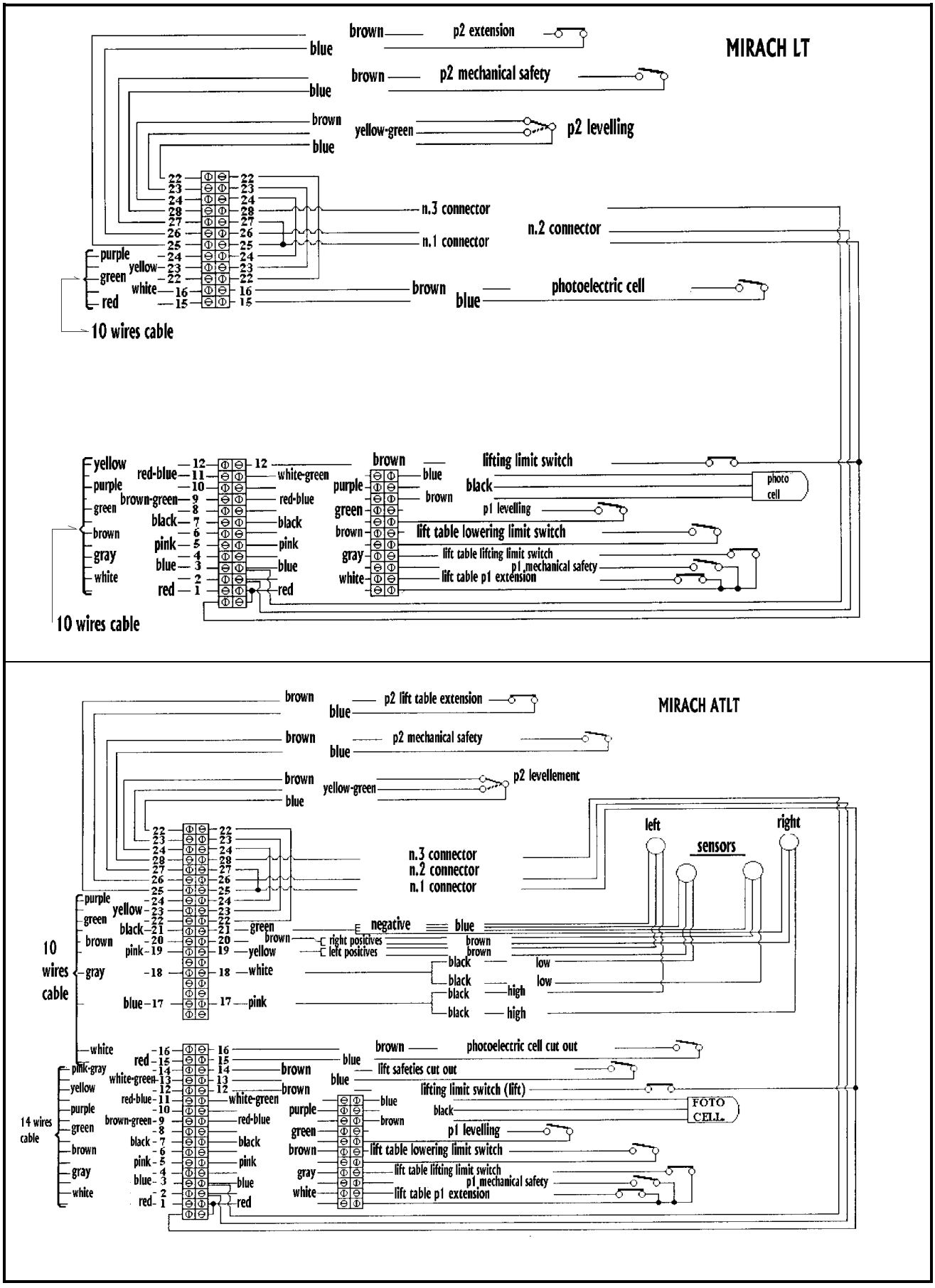
ELECTRIC CONNECTION

MIRACH 40N

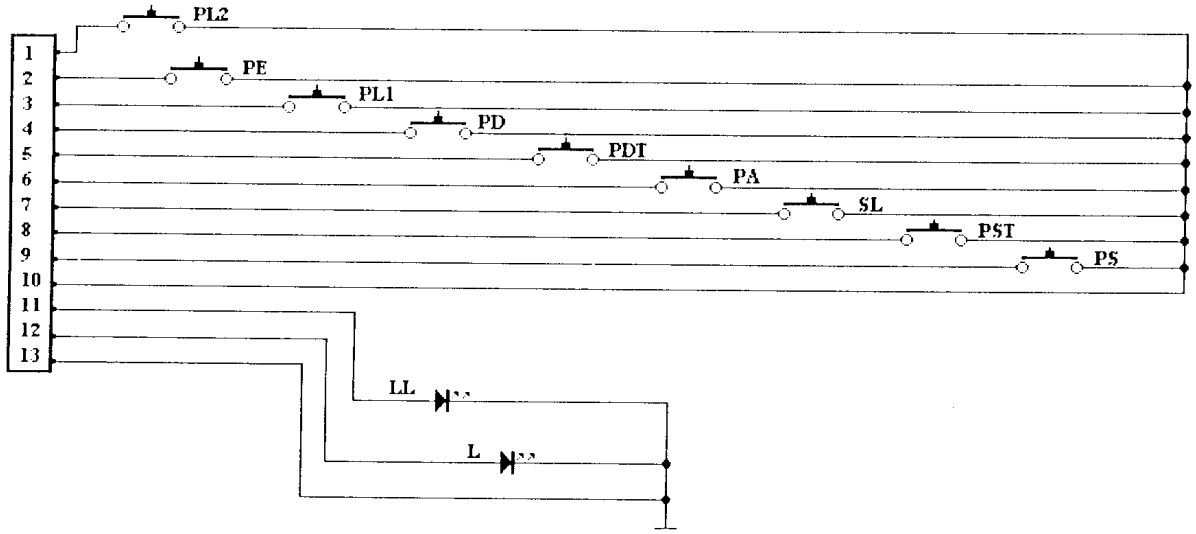


MIRACH 40 AT



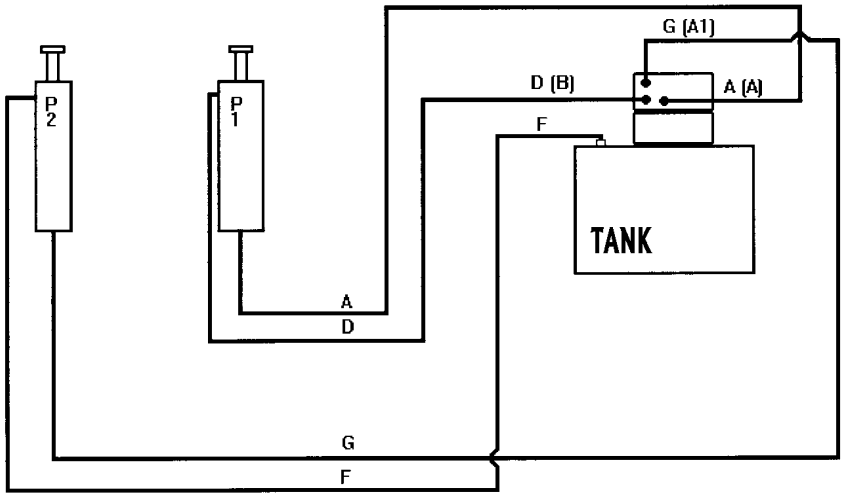

MIRACH LT
brown
blue
p2 extension
brown
blue
p2 mechanical safety
brown
blue
yellow-green
p2 levelling
n.3 connector
n.1 connector
n.2 connector
purple
yellow
green
white
red
brown
blue
photoelectric cell
10 wires cable
yellow
purple
green
brown
gray
white
red-blue
brown-green
black
pink
blue
red
white-green
red-blue
black
pink
blue
red
brown
purple
green
brown
gray
white
blue
brown
lifting limit switch
black
photo cell
p1 levelling
lift table lowering limit switch
lift table lifting limit switch
p1 mechanical safety
lift table p1 extension
10 wires cable
MIRACH ATLT
brown
blue
p2 lift table extension
brown
blue
p2 mechanical safety
brown
blue
yellow-green
p2 levellement
n.3 connector
n.2 connector
n.1 connector
left
sensors
right
10 wires cable
purple
green
yellow
black
brown
pink
gray
green
brown
yellow
white
negative
blue
right posicives
left positives
brown
brown
black
black
black
black
low
low
high
high
white
pink-gray
yellow
purple
green
brown
gray
white
14 wires cable
red
white-green
red-blue
brown-green
black
pink
blue
red
white-green
red-blue
black
pink
blue
red
brown
brown
blue
brown
photoelectric cell cut out
lift safeties cut out
lifting limit switch (lift)
FOTO CELL
p1 levelling
lift table lowering limit switch
lift table lifting limit switch
p1 mechanical safety
lift table p1 extension
purple
green
brown
gray
white
blue
brown
blue
black

TOUCHPAD CONNECTIONS



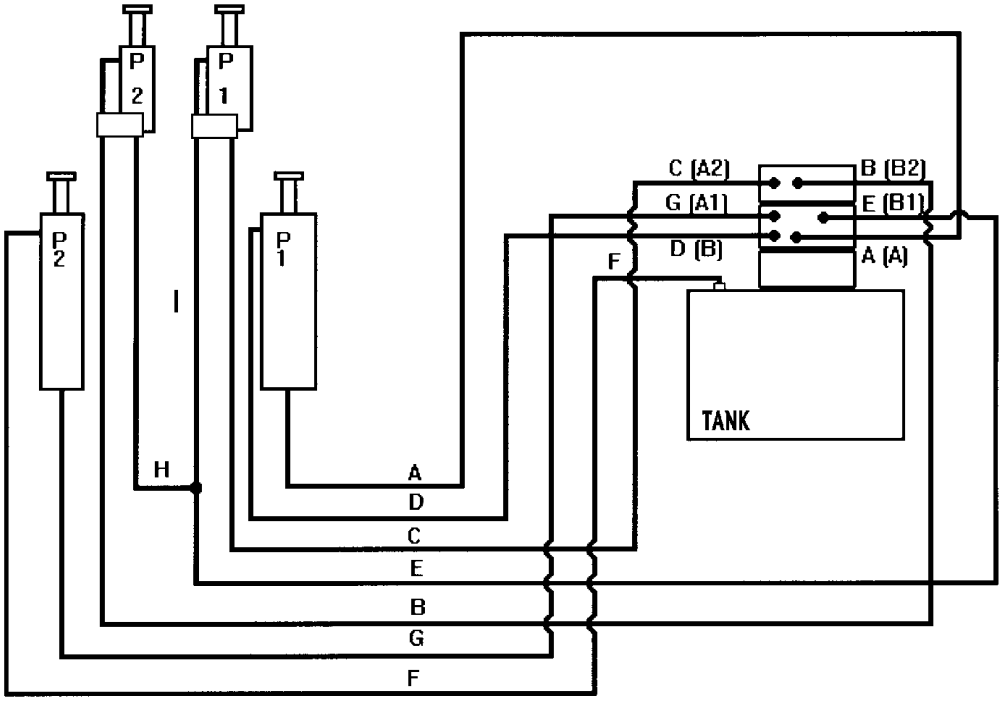
PL2	**SECOND PRE DETERMINATE WORK STOP**
PD	**LIFT LOWERING**
SL	**LIGHTING**
LL	**PILOT LAMP FOR LIGHTING FEED**
PE	**LIMIT SWITCH CUT OUT**
PDT	**LIFT TABLE LOWERING**
PST	**LIFT TABLE RAISING**
L	**PILOT LAMP FEED**
PL1	**FIRST PRE DETERMINATE WORK STOP**
PA	**MECHANICAL SAFETY DEVICE**
PS	**LIFT RAISING**

4- HYDRAULIC CONNECTION
M40 N-AT HYDRAULIC CONNECTION SCHEME



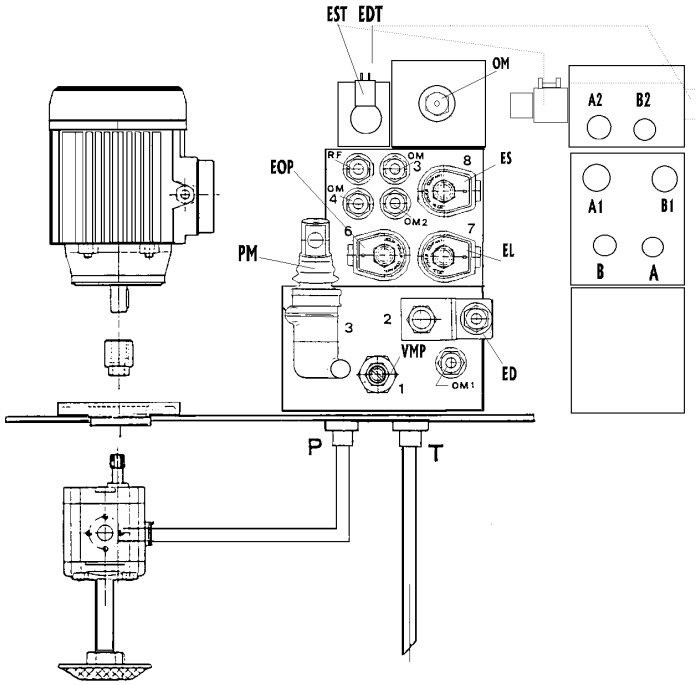
A	**P1 PISTON FEED**
D	**P1 PISTON RETURN**
G	**P2 PISTON FEED**
F	**P2 PISTON RETURN**

M40 LT-ATLT HYDRAULIC CONNECTION SCHEME



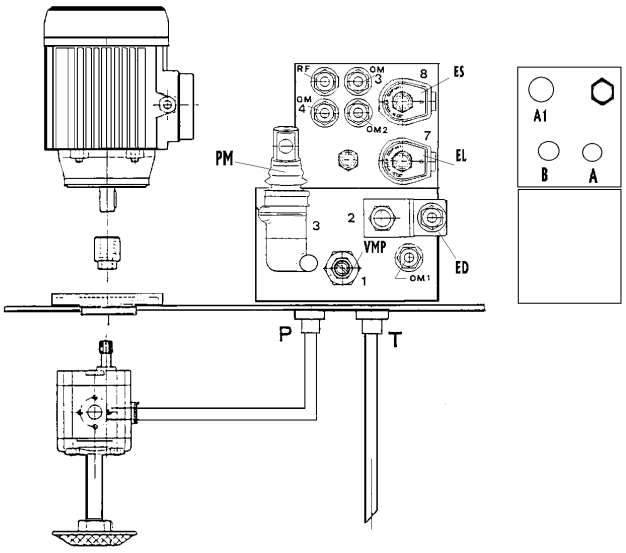
A	**P1 PLATFORM FEED**
B	**P2 LIFT TABLE RETURN**
C	**P2 LIFT TABLE FEED**
D	**P1 PLATFORM RETURN**
E	**LIFT TABLE SYNCHRONISM**
F	**P2 PLATFORM RETURN**
G	**P2 PLATFORM FEED**
H	**P1 LIFT TABLE FEED**
I	**P1 LIFT TABLE RETURN**

HYDRAULIC GROUPS "LT-ATLT"
MIRACH 40 LT-ATLT HYDRAULIC GROUPS



EST	LIFT TABLE LIFTING ELECTROVALVE	VMP	MAX PRESSURE VALVE
EDT	LIFT TABLE LOWERING ELECTROVALVE	OM1	MANUAL LOWERING LIFT
RF	P2 PLATFORM FLOW REGULATOR DISCHARGE VALVE	ED	LOWERING ELECTROVALVE
OM4	MANUAL LOWERING P2 LIFT TABLE	A	P1 PLATFORM FEED
OM3	MANUAL LOWERING P2 PLATFORM	B	P1 PLATFORM RETURN
OM2	MANUAL LOWERING LIFT	A1	P2 PLATFORM FEED
ES	P2 PLATFORM RETURN ELECTROVALVE	B1	LIFT TABLE SYNCHRONISM
EL	LIFT SYNCHRONISM ELECTROVALVE	A2	P1 LIFT TABLE FEED
EOP	OIL ELECTROVALVE LIFT	B2	P2 LIFT TABLE FEED
PM	HAND PUMP	OM	LIFT TABLE MANUAL LOWERING

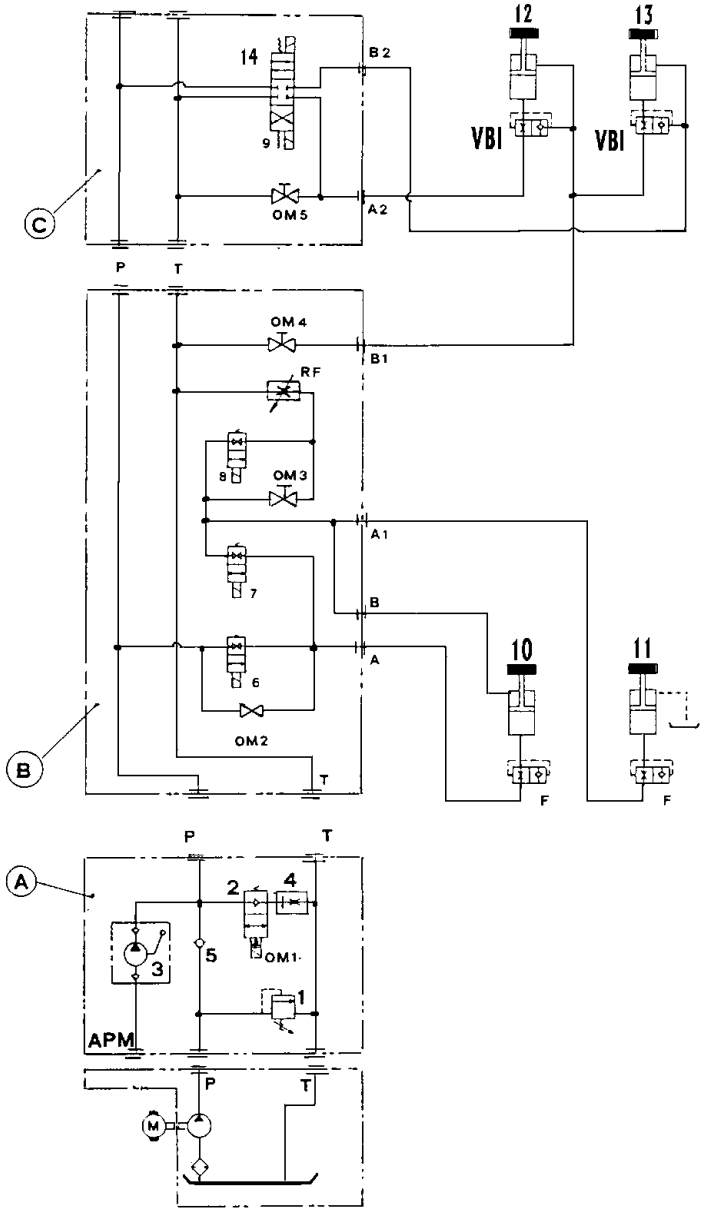
HYDRAULIC GROUPS "N-AT"



MIRACH 40 N-AT HYDRAULIC GROUP SCHEME

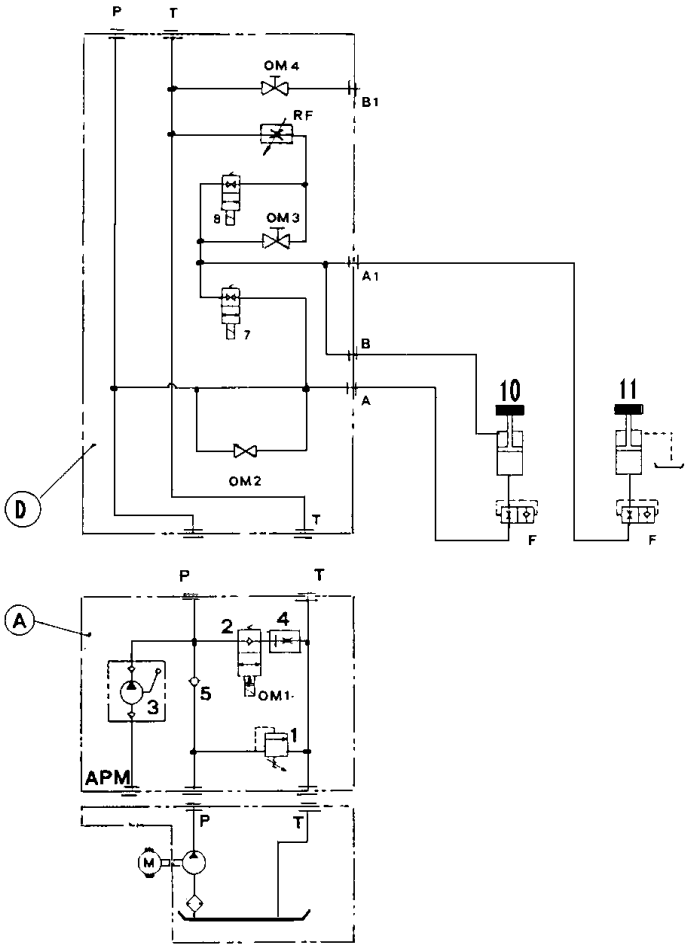
RF	P2 PLATFORM FLOW REGULATOR DISCHARGE VALVE	VMP	MAX PRESSURE VALVE
OM3	MANUAL LOWERING P2 PLATFORM	OM1	MANUAL LOWERING LIFT
OM2	MANUAL LOWERING LIFT	ED	LOWERING ELECTROVALVE
ES	P2 PLATFORM DISCHARGE ELECTROVALVE	A	P1 LIFT FEED
EL	SYNCHRONISM ELECTROVALVE LIFT	B	P1 LIFT RETURN
PM	HAND PUMP	A1	P2 LIFT FEED

“M 40ATLT-LT” HYDRAULIC SCHEME



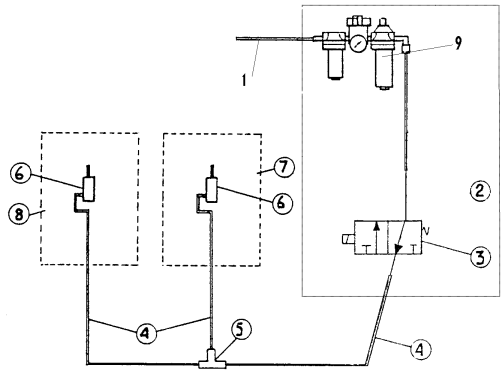
1-VMP	MAX PRESSURE VALVE	2-ED	LOWERING ELECTROVALVE
3-PM	HAND PUMP	4-RFP	FLOW REGULATOR VALVE
5-VNR	DIRECTIONAL VALVE	6-EOP	OIL ELECTROVALVE LIFT
7-EL	SYNCHRONISM ELECTROVALVE LIFT	8-ES	P2 LIFT DISCHARGE ELECTROVALVE
9-EST	LIFT TABLE LIFTING ELECTROVALVE	10	P1 PISTON
11	P2 PISTON	12	P1 LIFT TABLE PISTON
13	P2 LIFT TABLE PISTON	M	MOTOR
P	PRESSURE LINE	T	DISCHARGE LINE
OM1	MANUAL LOWERING LIFT	OM2	MANUAL LOWERING LIFT
OM3	MANUAL LOWERING P2 PLATFORM	OM4	MANUAL LOWERING P2 LIFT TABLE
OM5	MANUAL LOWERING LIFT TABLE	RF	P2 PLATFORM RETURN ELECTROVALVE
F	HYDRAULIC CHECK VALVE	VBI	PILOT BLOCK VALVE
A	P1 FEED	B	P1 PLATFORM RETURN
A1	P2 FEED	B1	LIFT TABLE SYNCHRONISM
A2	P1 LIFT TABLE FEED	B2	LIFT TABLE FEED
(A)	STANDARD HYDRAULIC BLOCK	(B)	LT/ATLT HYDRAULIC BLOCK
(C)	LIFT TABLE HYDRAULIC BLOCK	14-EDT	LIFT TABLE LOWERING ELECTROVALVE

“MIRACH 40N-AT” HYDRAULIC SCHEME



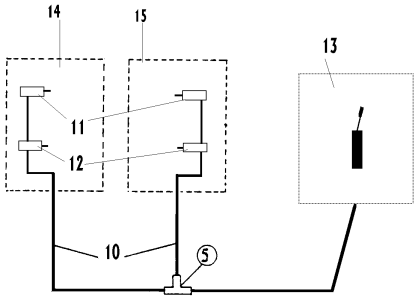
1-VMP	MAX PRESSURE VALVE	2-ED	LOWERING ELECTROVALVE
3-PM	HAND PUMP	4-RFP	FLOW REGULATOR VALVE
5-VNR	DIRECTIONAL VALVE	8-ES	P2 DISCHARGE ELECTROVALVE
7-EL	LEVELLING ELECTROVALVE	10	P1 PISTON
11	P2 PISTON	M	MOTOR
T	DISCHARGE	B	P1 RETURN
P	PRESSURE	F	HYDRAULIC CHECK VALVE
OM1	MANUAL LOWERING	A1	P2 FEED
OM3	P2 MANUAL LOWERING	(D)	N-AT HYDRAULIC VALVE
A	P1 FEED	RF	P2 PLATFORM DISCHARGE CHECK VALVE
(A)	STANDARD HYDRAULIC BLOCK		

PNEUMATIC CONNECTION - SAFETY DEVICE



1	AIR CIRCUIT INPUT
2	CONTROL BOX
3	AIR ELECTROVALVE
4	WHITE AIR PIPE
5	CONNECTION
6	AIR PISTON
7	P1 BASE
8	P2 BASE
9	AIR FILTER

PNEUMATIC CONNECTION - SLIDING PLATES



5	CONNECTION
10	ORANGE AIR PIPE
11	ONE HOLE AIR PISTON
12	TWO HOLES AIR PISTON
13	SLIDING PLATES COMMAND
14	P1 SLIDING PLATES
15	P2 SLIDING PLATES

5) ELECTRIC SYSTEM CONNECTION

Warning ! Only skilled personnel should be allowed to perform the operation shown below.

Connect as follows:

- Open the front cover of the control box and connect the electric cable to the master switch cable be using a proper junction box(be sure that the cables pass through the proper space located behind the control box. This car lift is designed to operate on 380V, in case of a different voltage, change both connections to the motor and to the transformer. Before connecting the electric system, make sure that the power supply plant to the lift is equipped with the protection devices required by current standards in the Country where the lift is installed.

Connect the lift cables to the corresponding ones placed in the electric card as specified in the electrical connections chapter, check if the connections are hooked properly.

CAUTION

Before opening the control box, for connection to power supply or for repairs on electric devices, make sure that the main power supply is disconnected, in order to avoid possible electrocution.

COMMERCIAL PARTS - WIRING PLANT

N.	Descrption	Manufacturer	Type	Max. util.	N	AT	LT	ATLT
1	P2 lift table extension limit switch	Sider electr.	MS10	1			▯	▯
2	P2 platform synchronism limit switch	"	MS10	1	▯	▯	▯	▯
4	First pre determinated work stop	Siemens	prox.	1	▯	▯	▯	▯
5	Second pre determinated work stop	Siemens	prox.	1	▯	▯	▯	▯
6	P1 lift table extension limit switch	Sider electr.	MS10	1			▯	▯
7	P1 platform synchronism limit switch	"	MS10	1	▯	▯	▯	▯
9	Lift table lowering limit switch	"	MS10	1			▯	▯
10	Lift table lifting limit switch	"	MS58	1			▯	▯
12	Mechanical safety device cut out limit sw.	"	MS10	1	▯	▯	▯	▯
13	Photoelectric cell cut out limit switch	"	MS10	1	▯	▯	▯	▯
3	P2 mechanical safety device limit switch	"	MS54	1	▯	▯	▯	▯
11	P1 mechanical safety device limit switch	"	MS54	1	▯	▯	▯	▯
14	Lifting limit switch	"	FR502	1	▯	▯	▯	▯
8	Photoelectric cell	INFRA	1812	1	▯	▯	▯	▯
	Electric cables	various			▯	▯	▯	▯
	Junction box	GEWISS					▯	▯
	Main switch	SPRECHER S.	LE2-3x16A	1	▯	▯	▯	▯
	Fuse carrier	WEBER	25A-380V	various	▯	▯	▯	▯
	fuse	WEBER	various	various	▯	▯	▯	▯
	Contactor	SPRECHER S.	16A	various	▯	▯	▯	▯
	Transformer	LSP	70VA 12/0/18	1	▯	▯	▯	▯
	Electric card	ROTARY LIFT			▯	▯	▯	▯

PNEUMATIC PLANT

3	Air electrovalve	ACL/MM	24V-50/60HZ 8VA	10Bar	▯	▯	▯	▯
4	White air pipe	RILSAN	various	30Bar	▯	▯	▯	▯
10	Orange air pipe	RILSAN	various	30Bar		▯		▯
	Pneumatic connections	various	various	16Bar	▯	▯	▯	▯
6	Air piston	ROTARY LIFT		2-15Bar	▯	▯	▯	▯
11	Air piston (one hole)	ROTARY LIFT		1-15Bar		▯		▯
12	Air piston (two holes)	ROTARY LIFT		1-15Bar		▯		▯
13	Sliding plates command	LS		1		▯		▯
9	air filter	LS		1		▯		▯

HYDRAULIC PLANT

	Oil tank cover	ROTARY LIFT		1	▯	▯	▯	▯
	Oil tank	ROTARY LIFT		1	▯	▯	▯	▯
	Filter	FBN		1	▯	▯	▯	▯
	Pump	HYDROIRMA	5L	1	▯	▯	▯	▯
M	Motor	ELPROM ELD	220/380 3PM 5OHZ 1400 RPM 3KWIP54	1	▯	▯	▯	▯
VMP	Max pressure valve	TECNORD	85/220 Bar	250Bar	▯	▯	▯	▯
ED	Lowering electrovalve	TECNORD		250Bar	▯	▯	▯	▯
EL	Lift synchronism electrovalve	TECNORD		250Bar	▯	▯	▯	▯
ES	P2 lift discharge electrovalve	TECNORD		250Bar	▯	▯	▯	▯
EOP	Oil electrovalve	TECNORD		250Bar	▯	▯	▯	▯
EDT	Lift table raising electrovalve	ATOS		250Bar			▯	▯
RF	Flow regulator valve	TECNORD		250Bar	▯	▯	▯	▯
F	Parachute valve	MONTI			▯	▯	▯	▯
10	P1 piston	MONTI	150	300Bar	▯	▯	▯	▯
11	P2 piston	MONTI	140	300Bar	▯	▯	▯	▯
12	P1 lift table piston	MONTI		300Bar			▯	▯

13	P2 lift table piston	MONTI		300Bar			□	□
	R1-R2 hydraulic hoses	MANULI		210-400Bar	□	□	□	□
	Hydraulic connectors	Various		400Bar	□	□	□	□

6) FIXING THE LIFT

After making electric and hydraulic connections, make sure they are properly connected. Now fix the lift to the floor be using the bases as templates, drill a hole into the floor with a 18 mm.Ø bit to a depth of about 150 mm., clean the holes, place the proper inserts with a light hammer blows and finally tighten the bolts. In case of an inground lift, check that it is perfectly centred. (To open the lift see chapter "4" INSTALLATION).

7) FIRST STARTING

Warning! Only skilled and authorized personnel should be allowed to perform these operations.

Carefully follow all instructions shown below to prevent possible damage to the car lift or risk of injury to people.

Be sure that the operating area is cleared of people.

Once the lift has been positioned, as described, and made all the electrical and hydraulic connections **(temporarly, do not connect air circuit)** it is possible to operate the lift.

Open the power box front cover and unscrew the oil tank cap, put 15 litres of hydraulic oil by using a funnel (for the N-AT models) or 20 lt. of the hydraulic oil (for the LT-ATLT models) "ESSO NUTO H 32" or equivalent. Set the general switch to position "1" (see page 5) and push both lifting and exclusion button at the same time (see page 5 pos. 12-7) until P1 platform stops. If the lift doesn't move but the motor runs regularly, be sure it runs in the proper direction, if not, invert the feeding phase. Put 5 lt. of hydraulic oil (for the N-AT models), or 7lt of hydraulic oil (for LT-ATLT) in the tank and push the two buttons again until platform P2 stops. **Connect the air circuit now.** Push the lowering button in order to lower the platforms (see page 5 pos. 2). Carry on the lift table levelling for the LT and ATLT models, push the lift table lifting button and the exclusion button (see pag 5 pos 5-7) until the two platforms stop. Push the lift tables lowering button to lower the lift table (see page 5 pos.4). Raise/lower the lift for 4/5 times (both lift table and main platforms) in order to release eventual air in the cylinders, the operations are now concluded. The P2 turret platform is normally half a centimeter higher than the P1 platform; level the two platforms by opening the OM4 (valve) which releases the oil in excess, and then close it. Important! once the installation is completed, close the manual by-pass screw of the hydro operated stop valve.

CHAP. 5 OPERATION

OPERATING SEQUENCE

Before driving on or off the lift, be sure the platforms are fully lowered and, where supplied, that the sliding plates are pneumatically blocked. Drive on the lift very slowly being sure the vehicle is centered on the platforms. Push the "raise" button to the desired height and then push the "mechanical safety device operation button" (page 5 pos.3). Push the "lowering" button to lower platforms (page 5 pos.6), by pushing this button the lift initially goes up enough to disengage the mechanical safety and then it starts lowering and stops at about 30/40 cm. from the floor. An audible signalling goes on which advises danger and the lowering takes place after a few seconds. Position the wheels of the vehicle out of the lift table platform in order to use it, put the rubber pads in the pick up points suggested by the manufacturerand procede by pushing the raise button (page 5 pos. 5) or lowering button (page 5 pos.4)

During the first hours of operation cracking noises could occur. This is due to the natural settlement of mechanical parts and will disappear during the following hours of operation.

CHECK

Perform the following checks when operating the car lift.

- **Check if the mechanical safety devices are positioned properly in their seat.**
- **Always check the lift and its load when lifting/lowering.**
- **Check if the ramps have a proper inclination (when raising/lowering the lift) and that its rolls work properly whitout giving problems to the floor.**
- **Check if the lift table extensions work properly (LT-ATLT models) and also see if the lift table platforms stop automatically at about 10 cm. from the main platforms when the lift table extensions are pulled out, this gives the operator the possibility to push them back to its place.**
- **Check if the audible signalling works properly when lowering the main platforms or the lift tables.**

CHAP.6 MAINTENANCE

WARNING! Only skilled and authorized personnel should be allowed to service the lift. When servicing the lift, all safety precautions must be followed to avoid the accidental starting of the machine. The general switch must be padlocked in "zero" position. During service operations, "safety" precautions must always be followed.

PERIODIC MAINTENANCE

Maintenance operations must be performed in specified maintenance periods in order to keep the car lift in perfect working condition. The manufacturer is not liable for possible damage resulting from not following the above instructions.

- Car lift must be cleaned once a month, at least, without using chemical agents and/or hight pressure washing guns. Always dispose of used brake oil to prevent possible damage to the finishing. Carefully check that piston rods are not damaged since inside seals could be seriously damaged and leakage of oil occur.
- Periodically check safety devices for proper working condition.
- Periodically grease roller slideways.
- Check flexible tubes for proper conditions every year.
- Change hydraulic system oil at 5 year intervals, at least. **Used oil is a highly pollutant product. Always dispose of used oil as specified by the effective law of the country where the car lift is installed.**

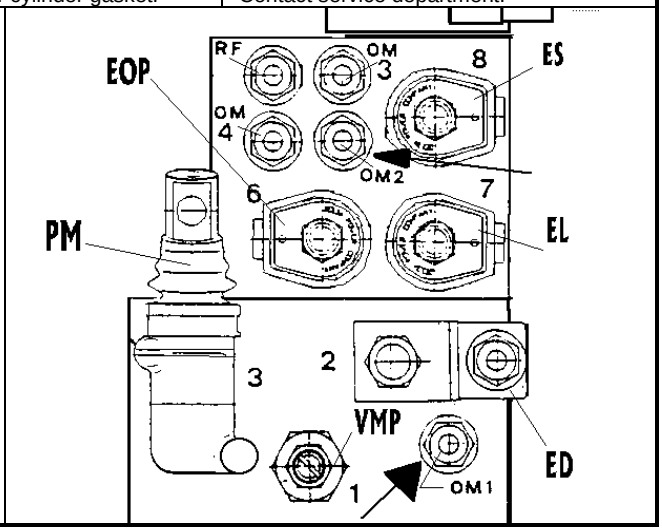
MACHINE DEMOLITION

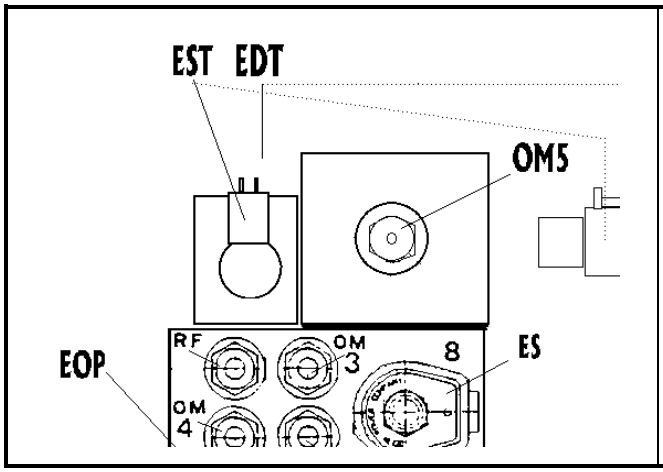
When demolishing the machine all safety precautions specified in chapter "3"-"4" must be followed. Only authorized technicians should be allowed to perform this operation. Metallic parts can be scrapped as "scrap iron". In any case, demolished material must be eliminated according to the effective laws of the Country where the car lift is installed. It must be remembered that, for fiscal purposes, any demolition operation must be properly documented as specified by the effective laws of the Country where the lift is installed at the time of demolition.

CHAP.7 SYMPTOMS AND SOLUTIONS TROUBLESHOOTING

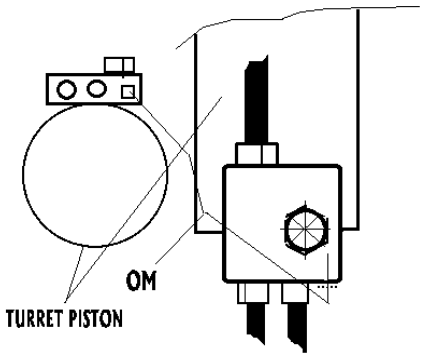
Troubleshooting and possible repairs require absolute compliance with all safety precautions indicated in chapter "6 - maintenance" and chapter "3 - safety".

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Lift does not operate	-Failure in the electric system	-Check connections and electric components for proper conditions.
Lowering operation cannot be performed.	-Air failure or damaged air electrovalve. -Damaged lowering electrovalve	-check air circuit and air electrovalve. -Check eventual power lack to the electrovalve
Lowering is too slow.	-Flow regulator valve for lowering control doesn't work properly.	-Contact service department.
Motor revs but lifting operations cannot be performed.	-OM1-OM2 manual operator hasn't been screwed back to its place. -No oil in the tank. -Motor revs the wrong way.	-Screw manual operator. -Refill with oil to the specified level. -Check motor for proper rotation direction. Exchange the phases if necessary.
Motor revs, but lifting speed is extremely slow	-OM1-OM2 manual operator hasn't been screwed back to its place. -Partially clogged suction filter. -Worn pump.	-Screw manual operator. -Clean the filter or contact service department. -Replace the pump.
Nominal capacity cannot be lifted.	-Damaged max pressur valve. -Worn pump.	-Contact service department. -Replace the pump.
Platform out of synchronism.	-Leakage in the hydraulic system.. -Synchronism electrovalve malfuncion.	-Spot leakage in the circuit, repair it and procede with initial starting operations. Contact service department if the same problem occurs. -Contact service department.
No disengagement of mechanical safety.	-Pneumatic electrovalve malfunction. -Air pressur insufficient. -Worn or damaged air cylinder gasket.	-Contact service department. -Check pneumatic circuit. -Contact service department.





HYDRO OPERATED STOP VALVE



MANUAL LOWERING

Open the "OM2 manual screw" by using a "5" ellen key in order to allow platform lowering, raise the platforms for a few cm. in order to disengage the mechanical safety devices, lift the safety brackets by using a 3 cm thick piece of wood, and position it along the whole length of the ratches (see drawing) slowly unscrew the "OM1 manual screw" and checkthe lowering of the platforms, once the lift is fully lowered, screw the manual screw back to its place. Raise the platforms and remove the piece of wood from the ratchet once the problem is solved. Open the stop valve by-pass screw by using a "5" ellen screw and unscrew the OM5 manual screw in order to lower the turret platform, once the two platforms are fully lowered screw back the OM5 and the two by-pass screws.

CHAP.8 ACCESSORIES

The inground frame is useful, it is made out of galvanized metal sheet and once assembled it surrounds the lift perimeter. This device eases the positioning in case the requested models are inground versions.

Other accessories available are: Set of extension hoses (2 mt.). Lighting Kit (220 or 24 V).Hydraulic play detector.Two meters ramps. Ramps double rice. Set rubber pads (for LT-ATLT models). Standard colours are: RAL 5015-RAL 3002

If requested, it's possible to have special colours and cold galvanizing.

CHAP.9 SPARE PARTS

Follow all the safety precautions indicated in chapter "3" and "6" when replacing of the spare parts and/or making repair.
Spare parts ordering procedure.
Clearly specify the following details when ordering spare parts.
Car lift serial number and year of manufacturing. Code of the part requested. Quantity needed, colour needed: R-RED, B-BLUE, RP-SPECIAL COLOUR. Request must be sent directly to the manufacturer.

MIRACH 40 N-AT-LT-ATLT
FIG.1 BASE

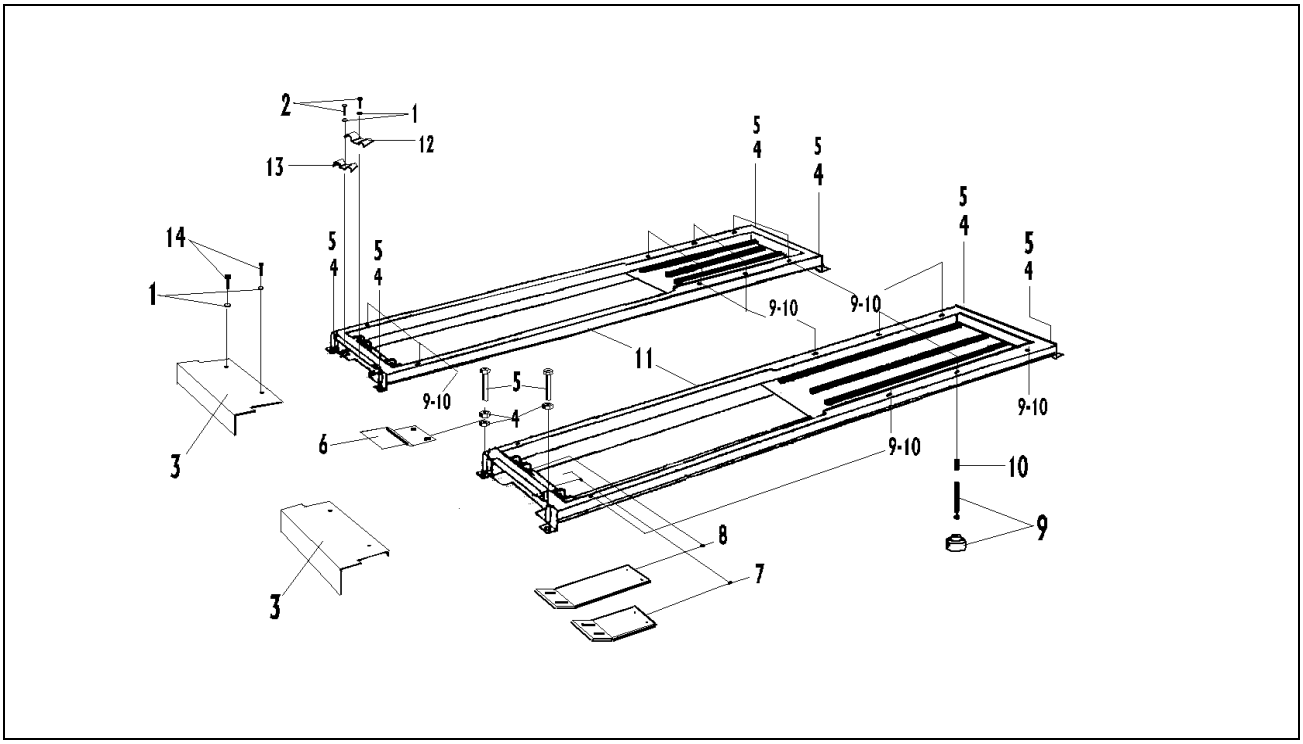


FIG. 2 LIFT BOOMS

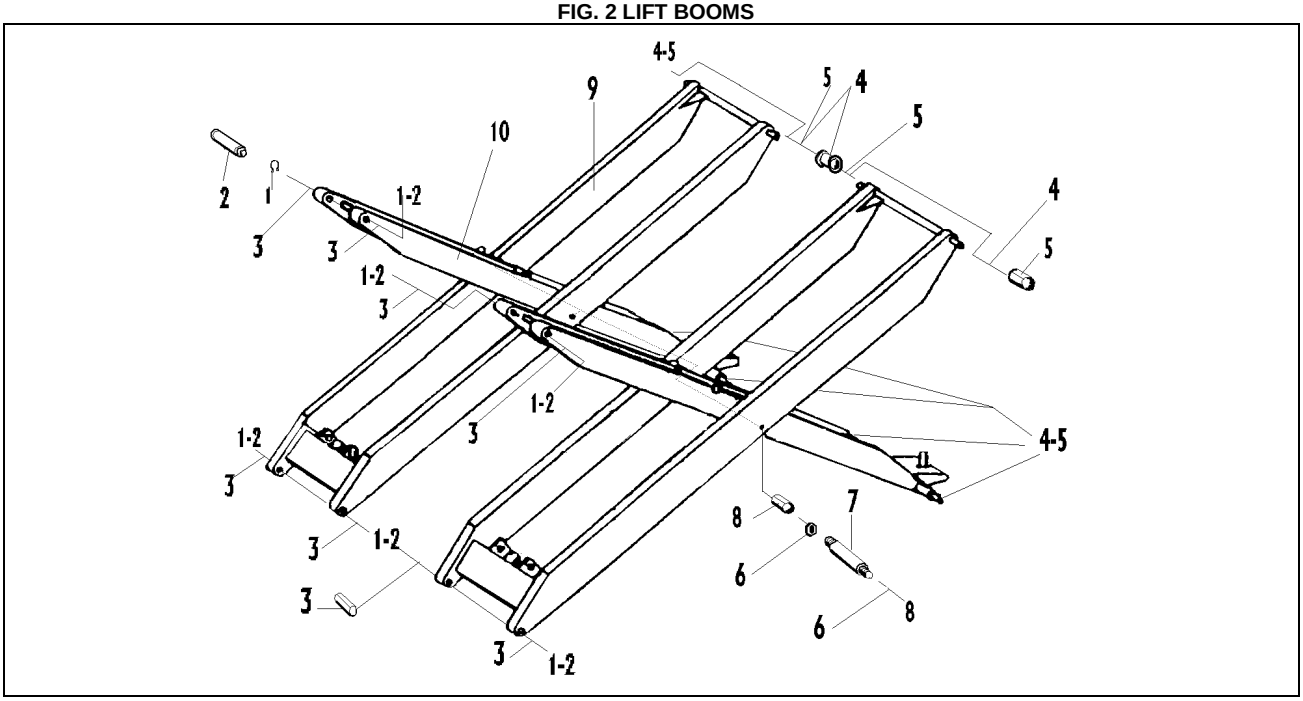


FIG. 3 LIFT TABLE BOOMS

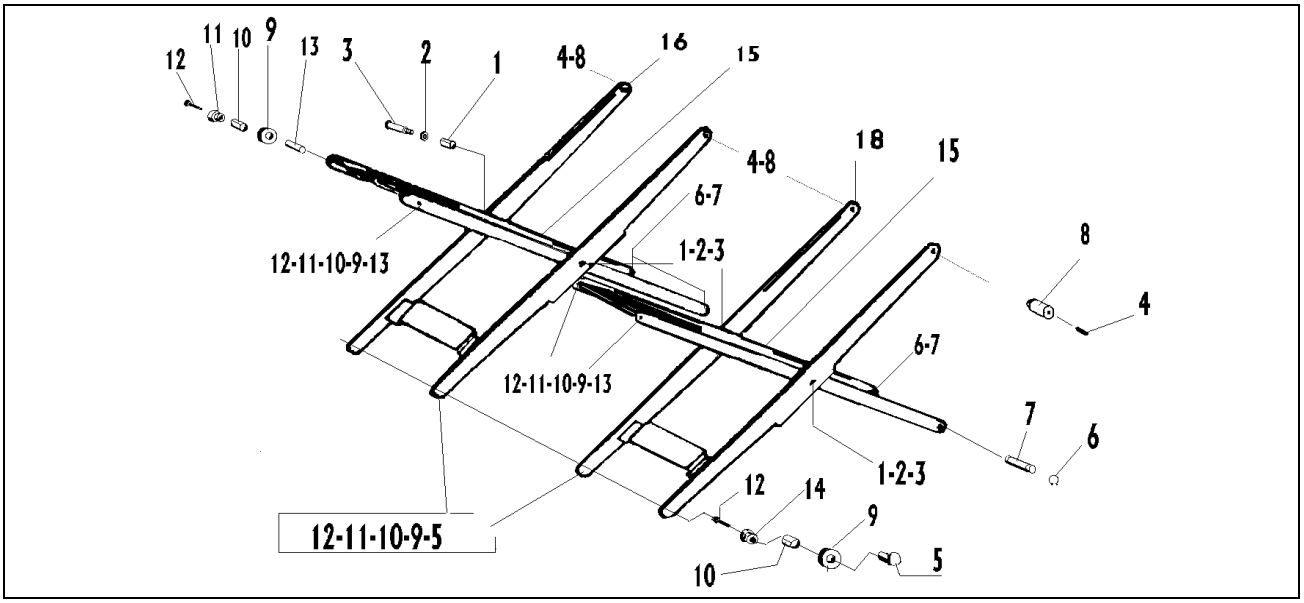


FIG. 4 PISTONS-AIR PISTONS

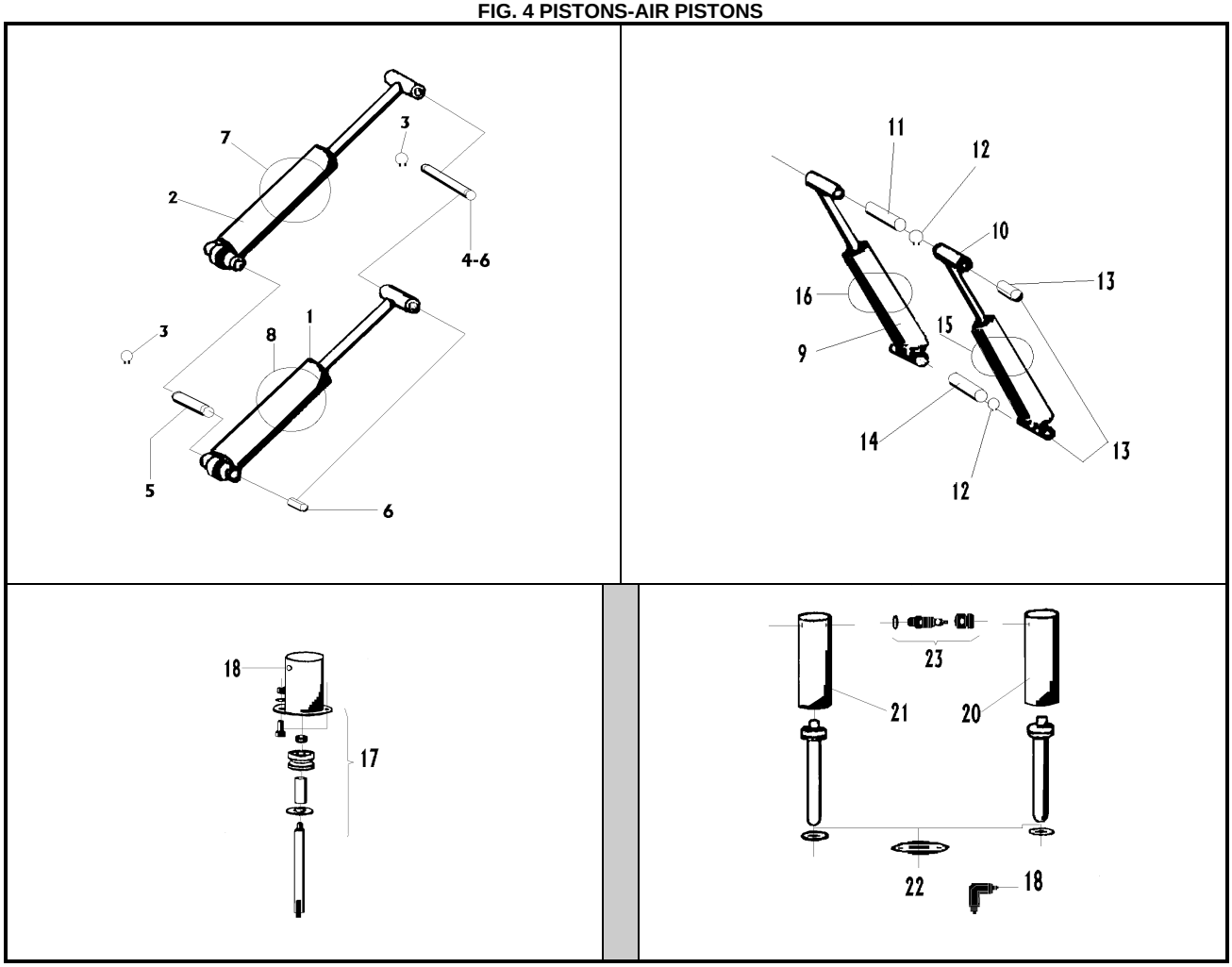
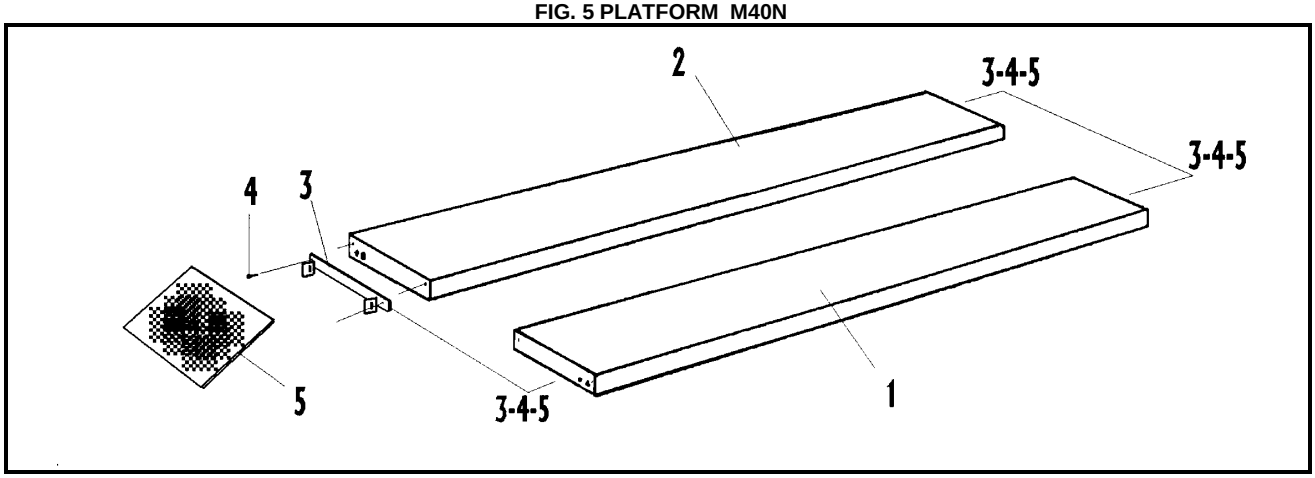
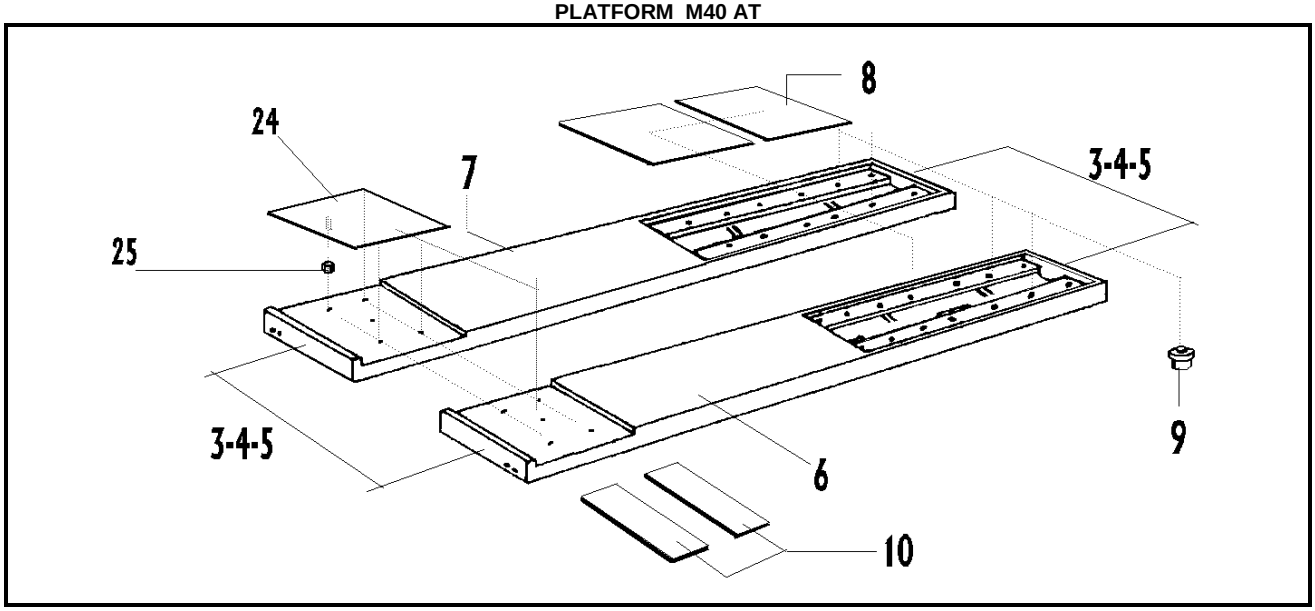


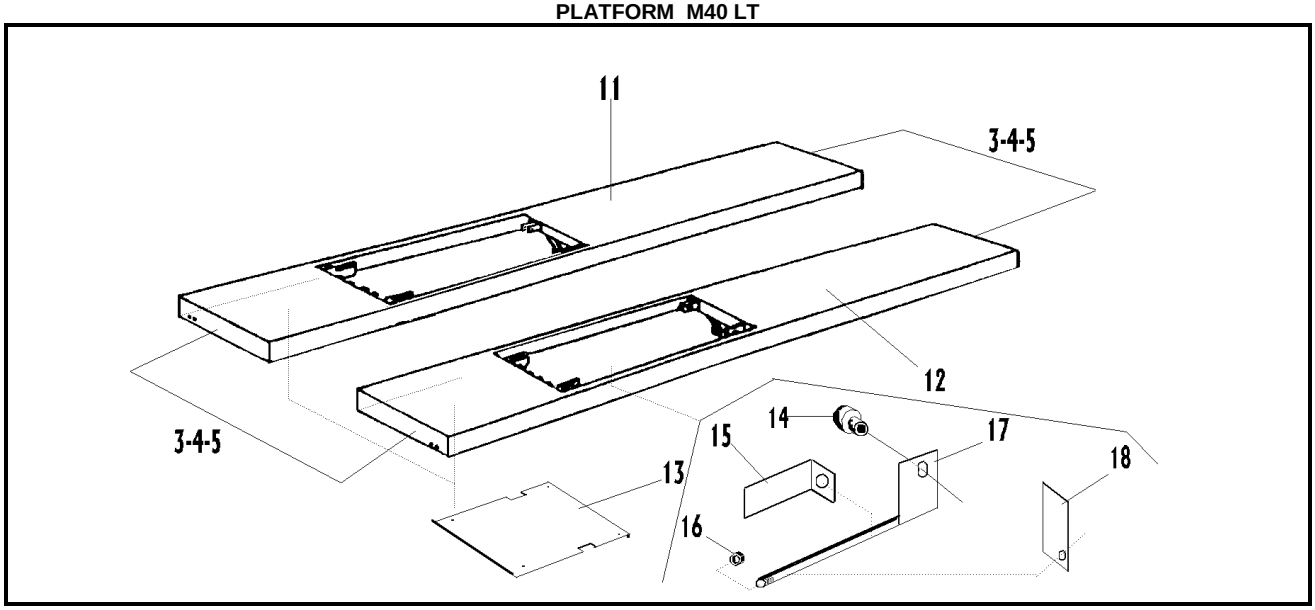
FIG. 5 PLATFORM M40N



PLATFORM M40 AT



PLATFORM M40 LT



PLATFORM M40 ATLT

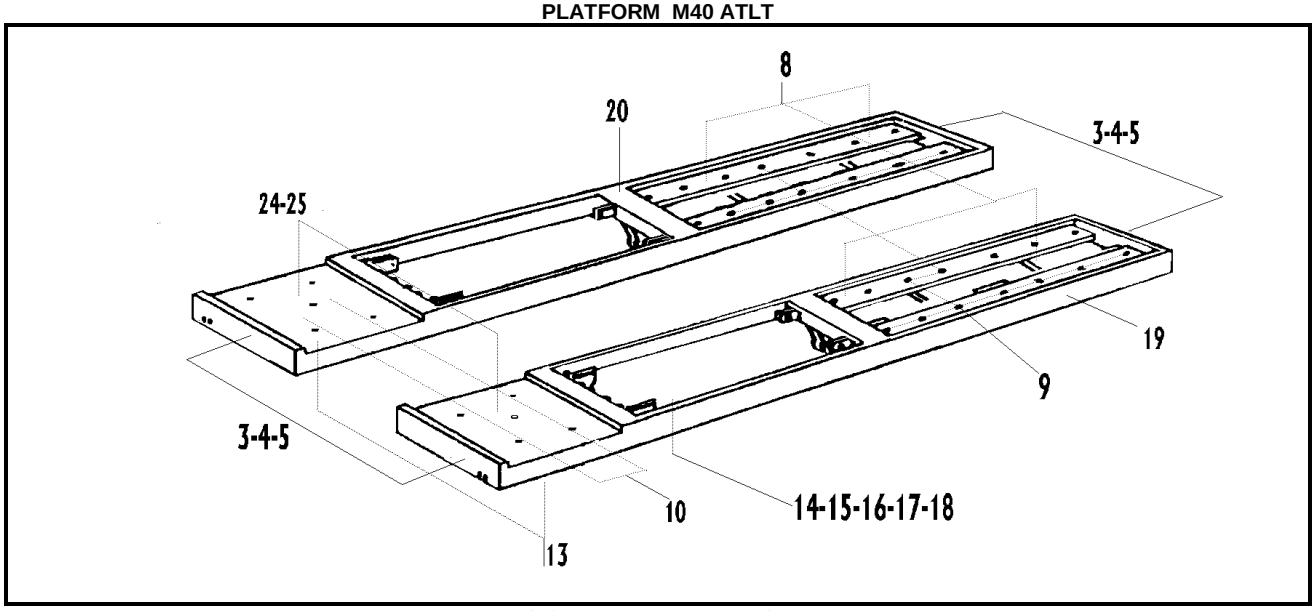


FIG.6 LIFT TABLE PLATFORM

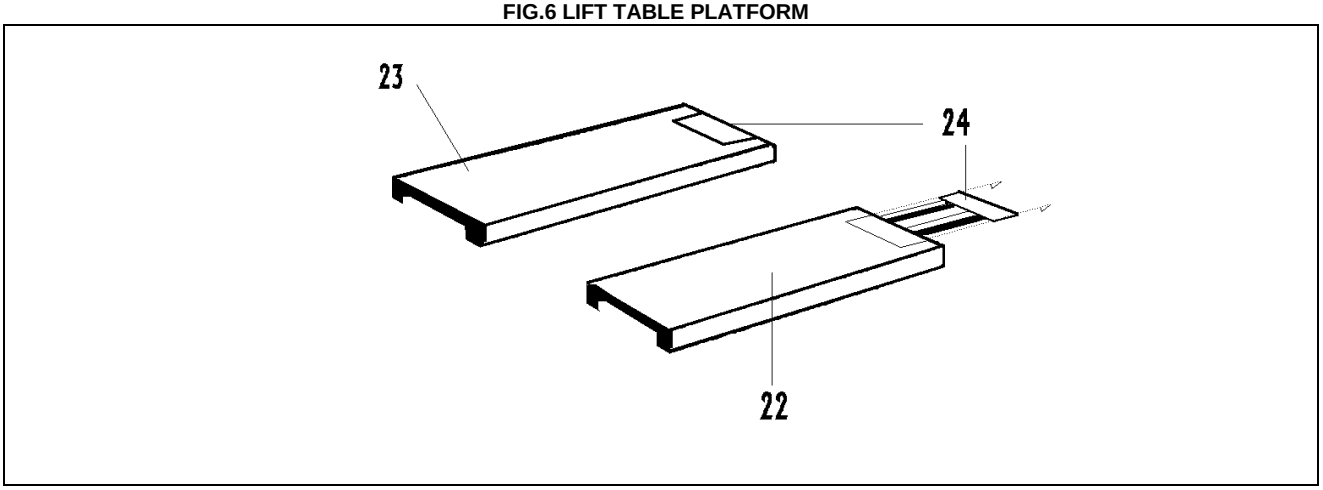


FIG.7 CONTROL BOX

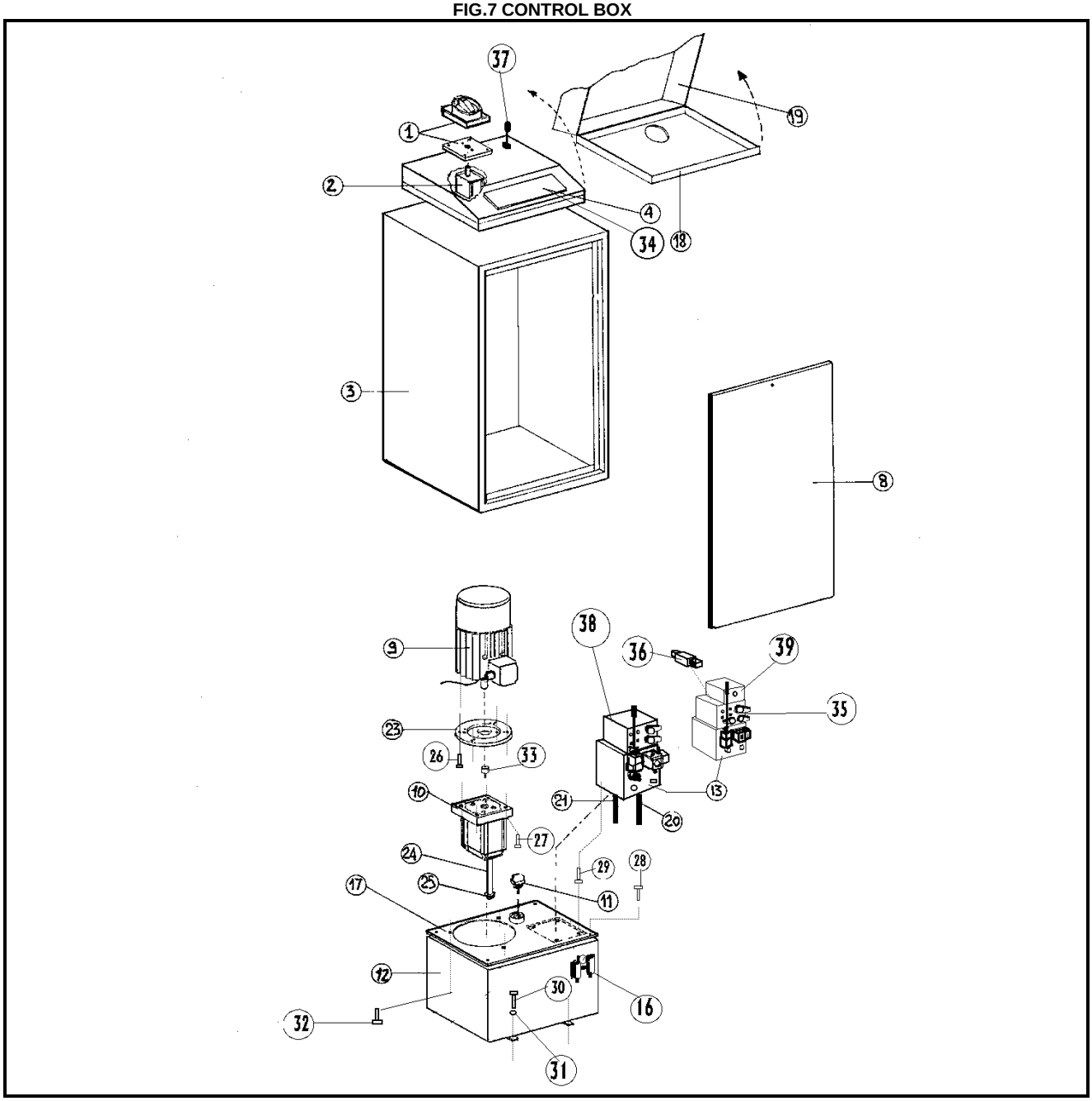


FIG.8 ELECTRIC SAFETIES

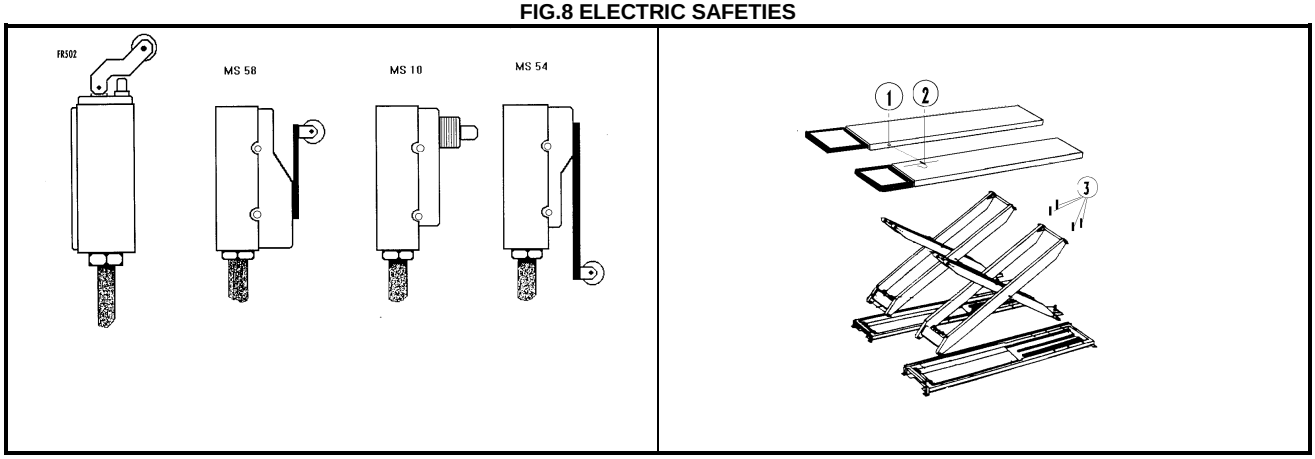


FIG.9 LIGHTING

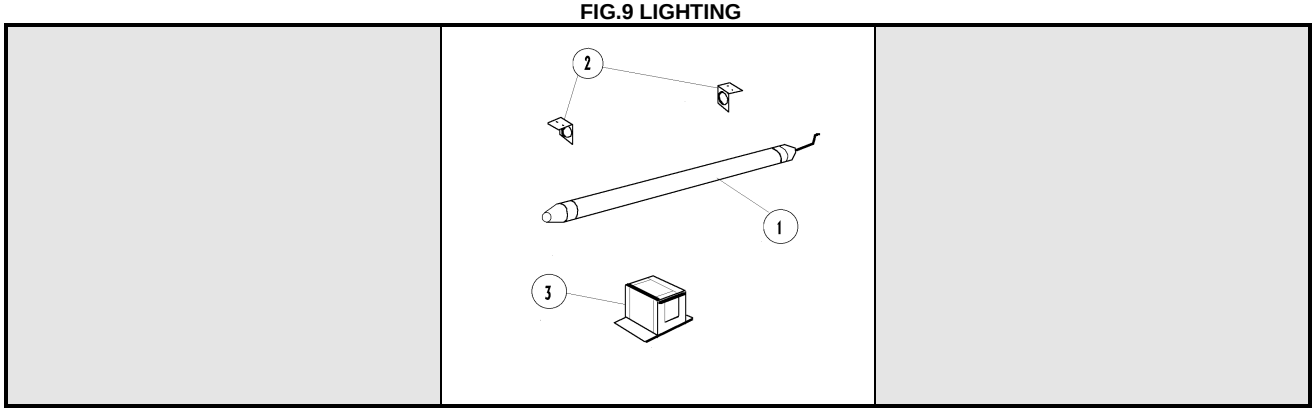


FIG.10 RAMPS

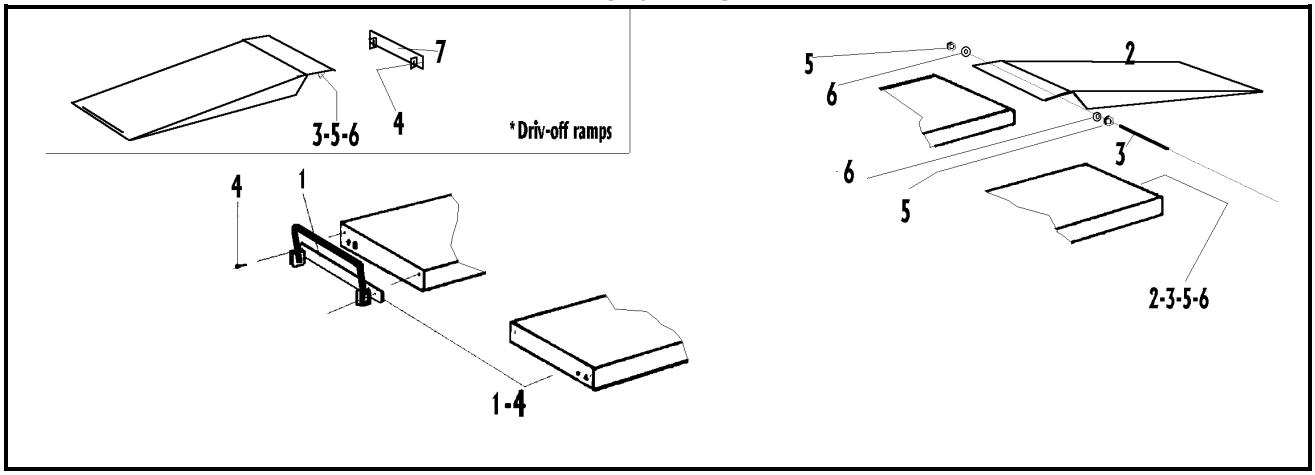


FIG. 1-BASE

N.	CODE	DESCRIPTION	MODELS-QUANTITY			
			N	AT	LT	ATLT
1	03-3004	6x18 WASHER	9	9	9	9
2	03-3003	TCEI M6X16 SCREW	4	4	4	4
3	01-1501	BASE COVER	2	2	2	2
4	03-3011	M14 NUT	10	10	10	10
4	03-3500	M14X90 TE BOLT	4	4	4	4
5	03-3111	M14X80 TE BOLT	4	4	4	4
6	01-1602	CLAMP	1	1	1	1
7	01-1206	CLAMP	1	2	1	2
8	01-1234	CLAMP	1	1	1	1
9	03-3503	M18X90 SETTING DOWELS	16	16	16	16
10	03-3504	M18X18 DOWELS	16	16	16	16
11	01-1600	BASE	2	2	2	2
12	01-0216	CLAMP FOR HOSES 3/8	4	4	4	4
13	01-0217	CLAMP FOR HOSES 1/4	4	4	4	4
14	03-3505	TCEI 6X10 SCREW	4	4	4	4

FIG. 2-BOOMS

1	03-3022	30 SNAP RING FOR SHAFTS	16	16	16	16
2	02-4002	PIN	8	8	8	8
3	03-3050	30X34X34 SELF LUBRICATING BUSHING	16	16	16	16
4	02-4003	ROLLER	8	8	8	8
5	03-3514	35X39X40 SELF LUBRICATING BUSHING	8	8	8	8
6	03-3020	25X1,5 SELF LOCKING NUT	8	8	8	8
7	02-4001	157X30 PIN	8	8	8	8
8	03-3513	35X34X40 SELF LUBRICATING BUSHING	8	8	8	8
9	01-1604	OUTSIDE BOOM	2	2	2	2
10	01-1603	RED INSIDE BOOM	2	2	2	2

FIG. 3 LIFT TABLE BOOMS

1	03-3525	25X28X30 SELF LUBRICATING BUSHING			8	8
2	03-3526	20 X 1 SELF LOCKING NUT			4	4
3	02-4010	PIN			4	4
4	03-3528	M5X10 DOWELS			8	8
5	02-4021	PIN			4	4
6	03-3527	25 SNAP RING FOR SHAFT			8	8
7	02-4014	PIN			4	4
8	02-4022	PIN			4	4
9	02-4013	ROLLER			8	8
10	03-3524	25X28X15 SELF LUBRICATING BUSHING			8	8
11	02-2518	7 mm. SPACER LIFT TABLE			7	7
12	03-3041	M8X25 BOLT			8	8
13	02-4011	PIN			4	4
14	02-2519	7 mm. SPACER			1	1
15	01-1717	P2 INSIDE BOOM			2	2
16	01-1716	P2 OUTSIDE BOOM			1	1
18	01-1715	P1 OUTSIDE BOOM			1	1

FIG. 4 PISTONS

1	04-4500	P1 PISTON	1	1	1	1
2	04-4501	P2 PISTON	1	1	1	1
3	03-3518	45 SNAP RING FOR SHAFT	8	8	8	8
4	02-4007	305X45 PIN	2	2	2	2
5	02-4006	196X45 PIN	2	2	2	2
6	03-3515	45X50X30 SELF LUBRICATING BUSHING	8	8	8	8
7	04-4201	P2 LIFT PISTON GASKET KIT	1	1	1	1
8	04-4200	P1 LIFT PISTON GASKET KIT	1	1	1	1
9	04-4512	P2 LIFT TABLE PISTON			1	1
10	04-4511	P1 LIFT TABLE PISTON			1	1
11	02-4009	PIN			2	2
12	03-3023	35 SNAP RING FOR SHAFT			8	8
13	03-3035	35X39X20 SELF LUBRICATING BUSHING			8	8
14	02-4008	PIN			2	2
15	04-4204	P1 LIFT TABLE PISTON GASKET KIT			1	1
16	04-4205	P2 LIFT TABLE PISTON GASKET KIT			1	1
17	02-0444	MECHANICAL SAFETY AIR PISTON	2	2	2	2
18	05-5500	90° UNION ELBOW	2	2	2	2
20	02-0666	AIR PISTON ONE HOLE		2		2
21	02-0667	AIR PISTON TWO HOLES		2		2
22	01-1511	SLIDING PLATE PISTON COUPLING FLANGE		4		4
23	05-5507	M5 6X4 AIR UNION		6		6

N.	CODE	FIG. 5/6 PLATFORMS LIFT AND LIFT TABLE	N	AT	LT	ATLT
1	01-1747	P1 PLATFORM	1			
2	01-1748	P2 PLATFORM	1			
3	01-1512	DRIVE ON RAMPS SUPPORTS	2	2	2	2
4	03-3037	M14 TSPEI BOLT	8	8	8	8
5	01-1527	AUTO CHOCKS	4	4	4	4
6	01-1751	P1 PLATFORM		1		
7	01-1752	P2 PLATFORM		1		
8	01-1526	SLIDING PLATE		4		4
9	03-3520	BEARING BALL		32		32
10	01-1529	ROTATING PLATE SHIMS		4		4
11	01-1467	P1 PLATFORM			1	
12	01-1466	P2 PLATFORM			1	
13	01-1619	PLATFORM COVER			2	2
14	02-2519	9 MM. LIFT TABLE SPACER			1	1
15	01-1505	CLAMP			1	1
16	03-3016	8 NUT			4	4
17	01-1517	LIMIT SWITCH CONTROL BRACKET			1	1
18	01-1605	CLAMP			1	1
19	01-1718	P1 PLATFORM				1
20	01-1719	P2 PLATFORM				1
21	01-1465	LIFT TABLE PLATFORM			2	2
23	01-1522	LIFT TABLE EXTENSION			2	2
24	01-1348	ADJUSTABLE PLATE FOR ROTATING PLATE		2		2
25	03-3011	M14 NUT		20		20
		FIG. 7 CONTROL BOX				
1	06-6012	FINISHING ELEMENTS	1	1	1	1
2	06-6055	MAIN SWITCH	1	1	1	1
3	01-1618	BOX	1	1	1	1
4	06-0997	TOUCHPAD	1	1		
8	01-1622	FRONT COVER	1	1	1	1
9	06-6126	THREE-PHASE MOTOR	1	1	1	1
10	04-4583	PUMP	1	1	1	1
11	04-4024	TANK CAP	1	1	1	1
12	01-1610	OIL TANK	1	1	1	1
13	04-4045	PUMP AND ELECTROVALVE BLOCK	1	1	1	1
16	07-4040	AIR FILTER	1	1	1	1
17	01-1611	TANK COVER	1	1	1	1
18	01-1624	CONSOLLE	1	1	1	1
19	01-1625	CONSOLLE COVER	1	1	1	1
20	04-4586	T1 PVC PIPE	1	1	1	1
21	04-4584	P1 R2TFG3/8 PIPE	1	1	1	1
23	02-2200	MOTOR FLANGE	1	1	1	1
24	04-4585	PVC L170 PIPE	1	1	1	1
25	04-4104	SUCTION FILTER	1	1	1	1
26	03-3086	M8x30 TCEI SCREW	4	4	4	4
27	03-3084	M6X25 TCEI SCREW	4	4	4	4
28/32	03-3085	M8X16 TCEI SCREW	7	7	7	7
29	03-3080	M8X12 TCEI SCREW	4	4	4	4
30	03-3123	M8X16 TE SCREW	2	2	2	2
31	03-3456	8X16 WASHER	2	2	2	2
33	04-4598	ACOUPLEMENT JOINT	1	1	1	1
34	06-0995	TOUCHPAD			1	1
35	04-4046	PUMP AND ELECTROVALVE BLOCK			1	1
36	04-4590	DOUBLE SOLENOID ELECTROVALVE			1	1
37	05-5511	SLIDING PLATE VALVE		1		1
38	04-4049	ELECTROVALVE BLOCK	1	1		
39	04-4099	LIFT TABLE BLOCK WITHOUT ELECTROVALVE			1	1
		FIG. 8 ELECTRIC SAFETIES				
1	06-6603	REFLECTOR	1	1	1	1
2	06-6600	PHOTOCELL DEVICE	1	1	1	1
-	06-6034	FR 502	1	1	1	1
-	06-6052	MS 058			1	1
-	06-6135	MS 10	4	4	7	7
-	06-6508	MS 54	2	2	2	2
3	06-6032	PROXIMITY LIMIT SWITCH	4	4	4	4
		FIG. 9 LIGHTING				
1	11-0001	NEON LAMP COMPLETE 24 V	4	4	4	4
4	01-0218	RIGHT LAMP SUPPORTS	4	4	4	4
2	01-0219	LEFT LAMP SUPPORTS	4	4	4	4
3		TRANSFORMER	1	1	1	1
		FIG. 10 RAMPS				
1	01-1059	WHEELS-STOPS	2	2	2	2
4	03-3037	M14 TSPEI BOLT	4	4	4	4
2	01-1595	DRIVE ON RAMPS - (TWO DRIVE ON RAMPS)	2-(4)	2-(4)	2-(4)	2-(4)
6	03-3519	WASHER	4-(8)	4-(8)	4-(8)	4-(8)
5	03-3051	SELF LOCKING NUT	4-(8)	4-(8)	4-(8)	4-(8)
3	02-4019	DRIVE ON RAMP PIN	2-(4)	2-(4)	2-(4)	2-(4)
7	01-1512	(RAMP SUPPORTS)	(2)	(2)	(2)	(2)

MIRACH 40 /97
WITH PLAY DETECTOR

OPERATING INSTRUCTION MANUAL

SUMMARY

SYMBOLS

□	**RISK-DANGER**
□	**NOT ALLOWED**
□	**CAUTION**

Follow the instruction given the messages preceded by a safety alert symbol

INTRODUCTION

All play-detectors have been designed and built as required by:
EUROPEAN RECOMMENDATIONS: EEC 98/37/CEE, 73/23/CEE, 93/68/CEE, 89/336/CEE.
EUROPEAN RULES: EN 291/1992, EN 292/1992, EN 294, EN349, EN1050, EN 60204-1, EN 300683, EN 55022B.
Only skilled and previously authorized technicians should be allowed to carry out transport, assembling, setting, maintenance, overhaul, moving, dismantling operations, etc. concerning the play detector. The manufacturer is not responsible for possible damage to people, vehicles and objects in the case that said operations are carried out by unauthorized personnel or the lift improperly used.

□ Read these instructions completely before operating the play detector.

□ The play detector must only be used for directional organs play control. Any inproper use of this lift is strictly forbidden

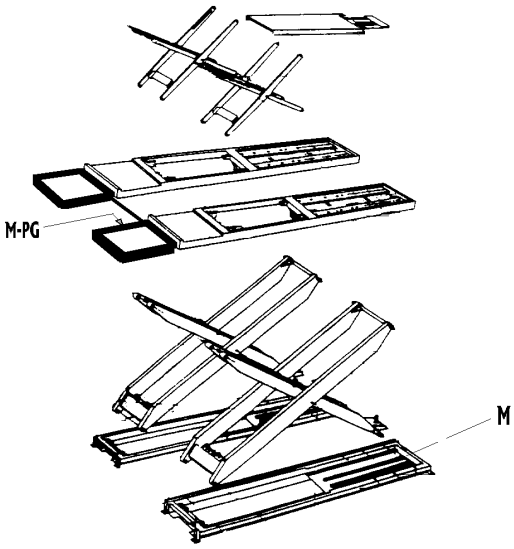
□ Disconnect the play detector from the main electric supply before any extraordinary maintenance operation.

□ play detector installation must be carried out as specified by these instructions.

The manufacturer is not liable for possible damage resulting from failure to follow the instruction supplied with this play detector.

MACHINE DESCRIPTION

The purpose of the hydraulic play detector is to spot eventual clearances of parts such as (bushings, bearings, etc) on vehicles having four wheels and a max weight of 2.550 kg per axis. A power unit is supplied together with two hydraulic operated metal plates. The mechanism is operated, once the general switch is turned on, by a torch having a selector which operates one or other play detector according to how it is selected.
The power unit is made out of a metal box in which an oil tank, pump-motor group, electrovalves and a printed board is assembled. The operating consolle is positioned in the upper part.



A: NOTICE
M: SERIAL NUMBER
M-PG: PLAY DETECTOR SERIAL NUMBER (ONLY FOR ITALY COUNTRY)

TECHNICAL FEATURES

- **ELECTRO HYDRAULIC OPERATING 4HP MOTOR**
- **2,5 LT/MIN PUMP**
- **42 mm. PLATE CLEARANCE (LONGITUDINAL AND TRANSVERSAL) RESULTING FROM A DIAGONAL ALTERNATING 45° MOVEMENT WHICH GOES TO POSITION ZERO WHEN THE TORCH SELECTOR IS RELEASED.**
- **THE TORCH IS MADE OF SHOCK-RESISTANT MATERIAL AND IS SUPPLIED WITH A 0,7 LAMP WHICH ALLOWS TO EASILY SPOT CLEARANCES OF PARTS SUCH AS (BEARINGS, BUSHINGS, ETC.).**
- **THE HYDRAULIC TRUST IS 780N AND THE MAX. WORKING PRESSURE IS 160 BAR**
- **THE UPPER PLATES ARE GALVANIZED AND ANTI SKID GIVES A >0,6 SKID COEFFICIENT IN WET CONDITIONS, THIS AVOIDS EXCESSIVE MOVEMENTS ON THE MECHANICAL PARTS OF THE VEHICLE.**
- **THE UPPER PLATES SLIDE ON "ERTOLAN" ROLLERS (N.8 FOR EACH PLATE) WHICH ARE MAINTENANCE FREE.**

SAFETY

GENERAL PRECAUTIONS

- The device has to be used only for its purpose.
- Any other use is to be considered improper. The constructor is not responsible for damage caused by an improper use of the device.
- The operator must follow all the safety regulations in force in the country in which the device is installed.
- Authorized or trained personnel only is allowed to operate the device.
- The constructor is not responsible for any modification of the device and eventual damages which could occur.
- Removing or modifing the safety devices is against the safety European regulations and warraty cannot be claimed at all.
- The maximum play detector capacity (2550 kg per axis) is not to be exceeded or serious damage cold occur.
- Intervening on the electric system, even for small things, is to be carried out by authorized and qualified personnel.
- Keep the area around the device clean, especially oil spots, in order to avoid accidents due to slipping.
- It is forbidden to use water jets or vapor especially near the power box.

SAFETY DEVICES

The play detector has its electric circuit protected by two 4A fuses and two 2A fuses. The operator will have to install a magnetotermic switch (380V-16A) on the power feed.

INSTALLATION

Installation must be carried out by qualified technicians encharged by the manufacturer or by the authorized dealers. Serious damage to people or things may occur if this is not followed.

POWER SUPPLY-CONNECTIONS

Carry out the electrical connections indicated in chapter “4” of this manual and always remember that:

Caution: All the operations below must be carried out by qualified personnel.

Caution: Disconnect power before any electric connection or repair inside the power box in order to avoid danger.

HYDRAULIC CONNECTIONS

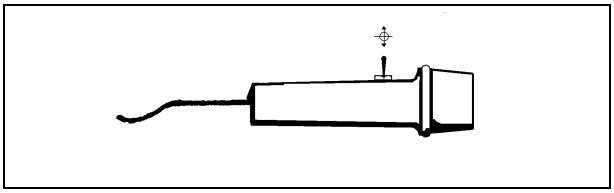
Carry out the hydraulic connections as indicated. Refill the oil tank with a few “ESSO NUTO H32” hydraulic oil or equivalent.

OPERATION

OPERATING SEQUENCE

1- Feed the system by turning the power box main switch to position “1”. A green light on the consolle will indicate that the lift and the play -detectors are ready to be used. Switch on the play detector selector (see position 11 on page 5).

2- The motor and the P1 and P2 plates start working by switching the torch selector to the right and to the left. The torch selector automatically goes back to its place (in the middle) once it is released and therefore stops the motor and the plates.



SUGGESTED WORKING PROCEDURES

Unauthorized personnel is not allowed to operate

1. Before starting to work, check the tire wear and pressure.
2. Center the tires of the vehicle to be checked, on the play-detector shims.
3. Use the brake wedge bar in order to block the tires.
4. Check eventual play on the steering box gears.
5. move the shims to spot:

- Play on the tire bearings.
- Play on the balland socket steering joint.
- Play on the ball joints.
- Play on the elastic bushings (silent block) of the transverse arm suspension.
- Play on the elastic bushings of the anti-roll bars.
- Eventual sheet of the main chassis
- Anchorage status of the Mc Pherson spring cushion type.
- Sheet status of the anchorage transverse swinging bars.
- Play on elastic elements and corresponding anchorage, longitudinal arms.

MAINTENANCE

Maintenance is not allowed by unhautorized personnel, disconnect/cut power before any maintenance on the device.

Maintenance at regular intervals assures a proper function of the play detector. If maintenance is not carried out regularly, the device may not work properly or be reliable.

TROUBLESHOOTING

Follow the safety tips indicated in chapter “3” before carryng out repairs

SYMPTOM	POSSIBLE CAUSE	PROBABLE SOLUTION
Nothing works.	Electric system is damaged	Check if all the electric components are connected properly
The motor runs but nothing else works	-no oil -motor runs in the wrong direction	-Check oil level. -Check and eventually invert the phase
One of the two plates is not working	Possible oil leak in the hydraulic circuit	Spot the leak and repair. If the problem is not solved please contact authorized personnel.

SPARE PARTS

Follow safety tips indicated in chapter 3 when replacing spare parts.

STEPS ON ORDERING SPARE PARTS

To order spare parts it is necessary to:
-Indicate serial number and year in which the device has been built.
-Indicate code number of the requested part.

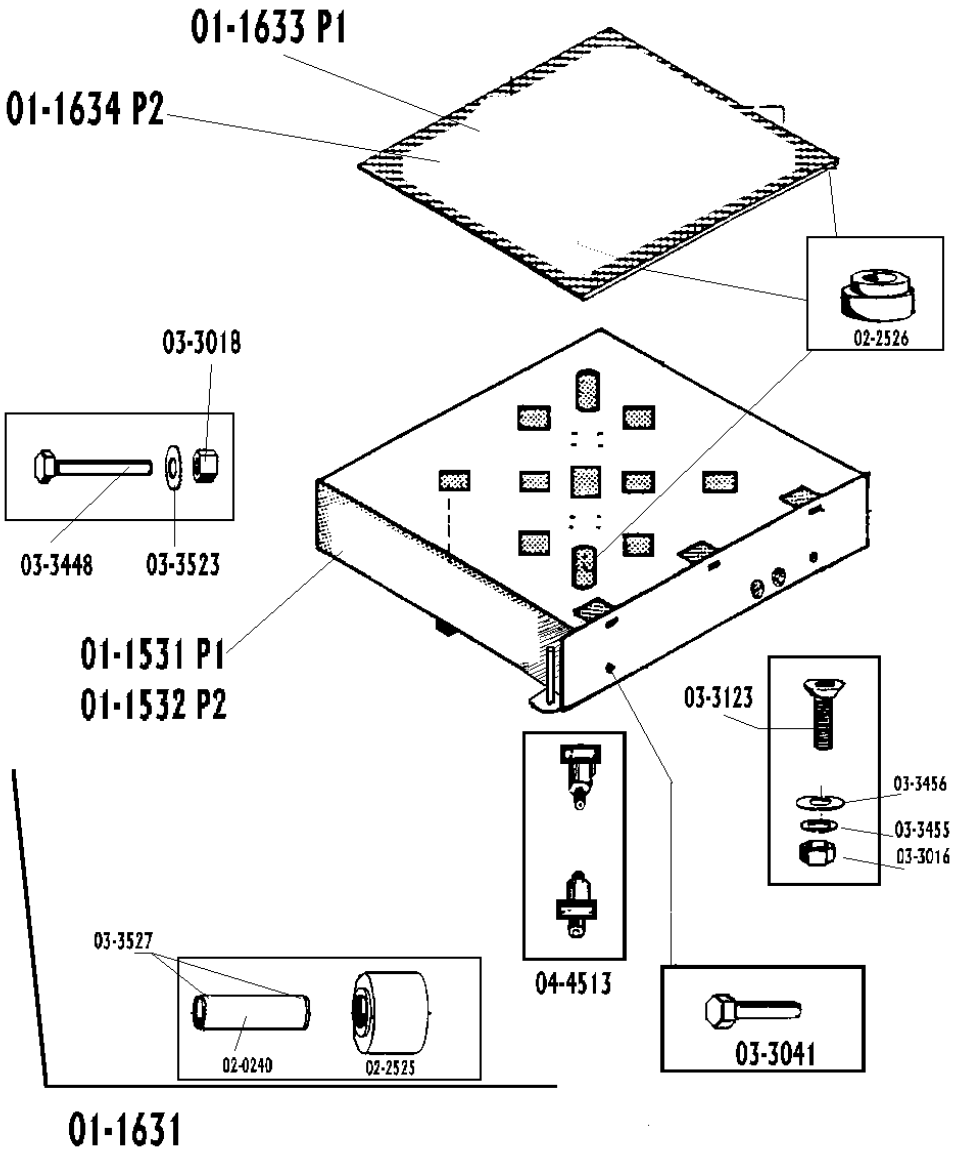
NOT USING THE DEVICE FOR A LONG PERIOD OF TIME.

In this case it is necessary to:
- Disconnect power supply.
- Empty oil tank inside the power unit.
- Grease moving parts of the device in order to avoid rust or dirt.

RECYCLING

In case the device is to be recycled because old or for some other reason, unhook all the connections, empty the oil tank and disassemble the device in equal parts. In order to recycle what can be recycled. These parts have to be recycled, destroyed according to the regulations in force.

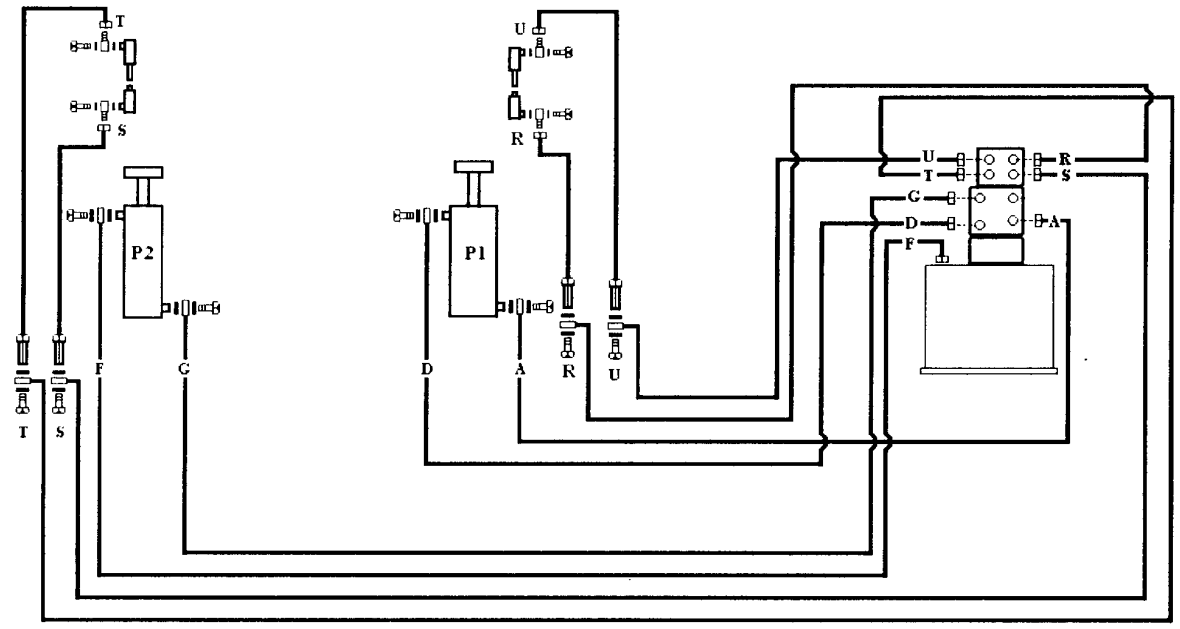
PLAY DETECTOR



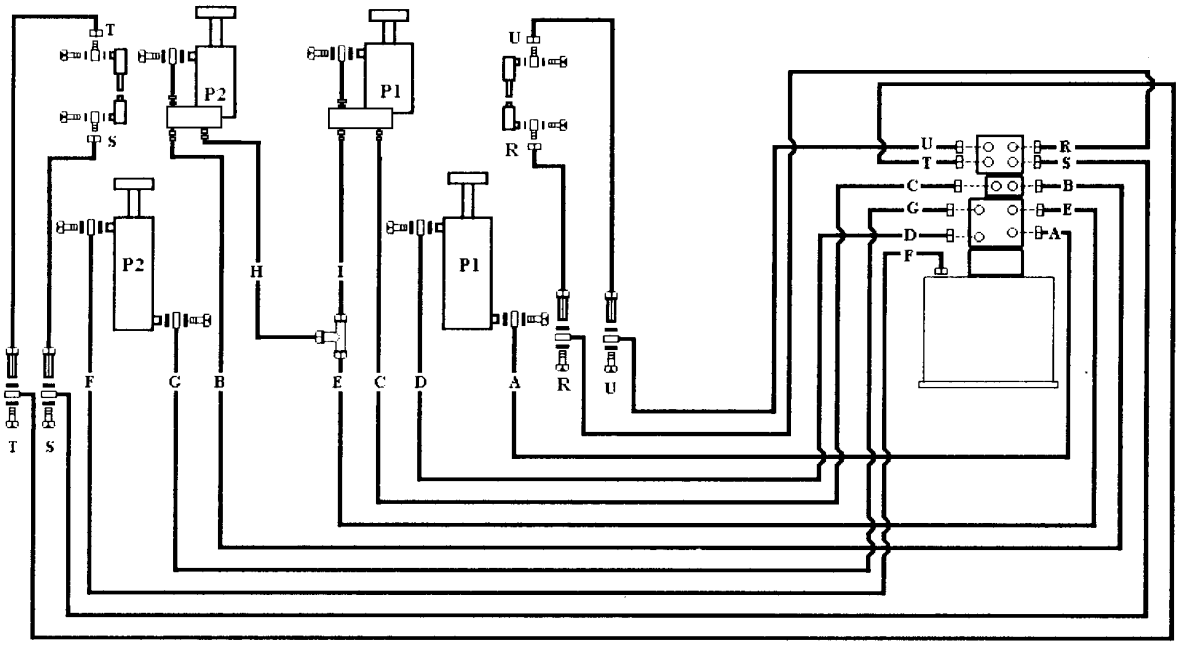
CODE	DESCRIPTION	CODE	DESCRIPTION
03-3455	LOCK WASHER	03-3123	M8 x 16 BOLT
03-3456	WASHER	03-3016	M8 NUT
02-2526	“ERTOLAN” BUSHING	04-4513	PLAY DETECTOR PISTON
06-6517	ON-OFF TORCH SELECTOR	02-0240	ROLLER PIN
02-2525	“ERTOLAN” ROLLER	03-3041	M8 x 25 TSPEI BOLT
03-3527	25 SNAP RING FOR SHAFT	03-3448	M10X60 BOLT
03-3523	“10 WASHER	03-3018	M10 NUT
01-1633	P1 PLATE	01-1634	P2 PLATE
01-1531	P1 PLAY DETECTOR	01-1532	P2 PLAY DETECTOR
01-1631	PLAY DETECTOR COMPLETE		

HYDRAULIC AND ELECTRIC SCHEME

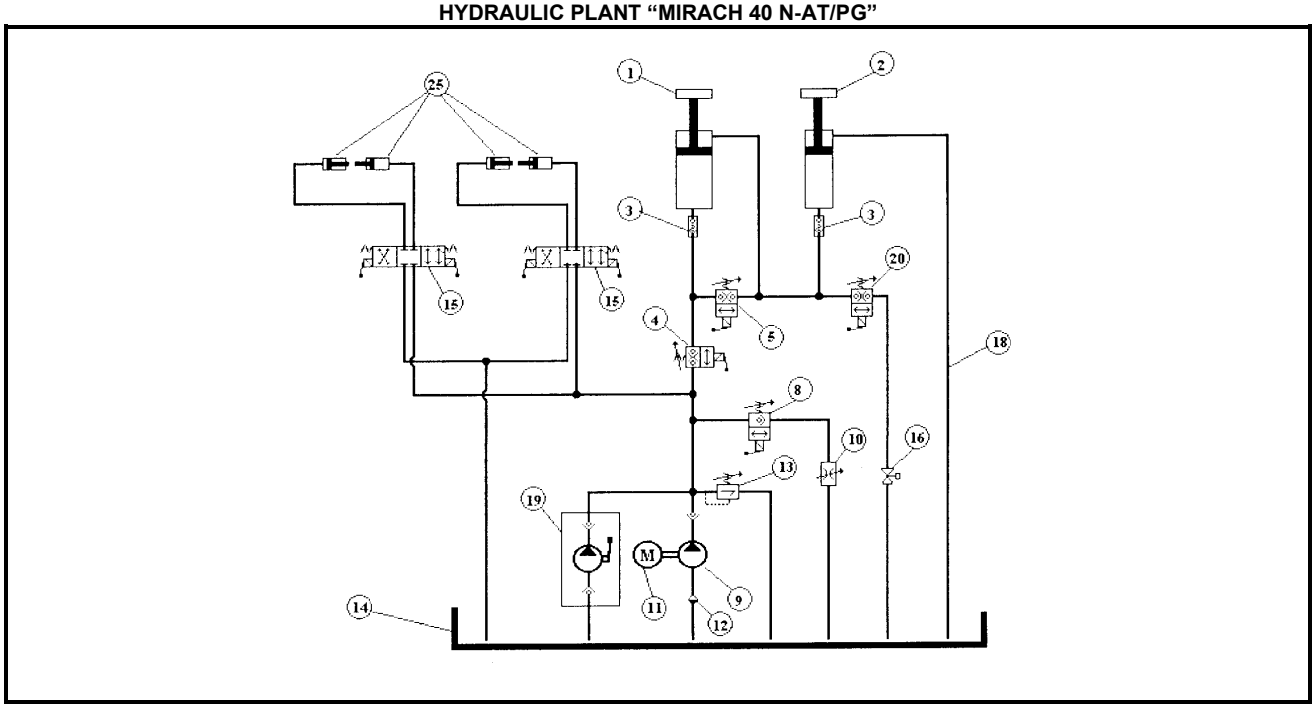
"MIRACH 40 N-AT/PG" HYDRAULIC PLANT



"MIRACH 40 LT-ATLT/PG" HYDRAULIC PLANT

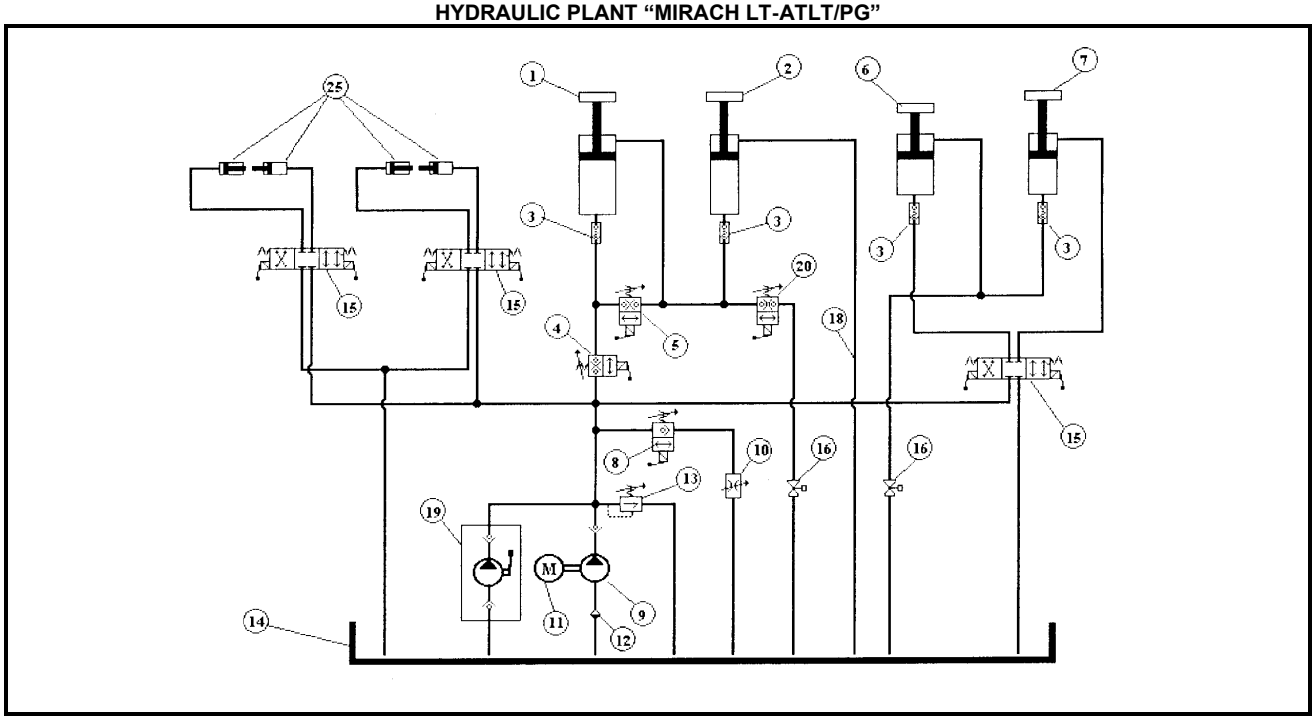


HYDRAULIC PLANT "MIRACH 40 N-AT/PG"



1	P1 PISTON	2	P2 PISTON	3	PARACHUTE VALVE
4	EOP ELECTROVALVE	5	EL ELECTROVALVE	8	LOWERING ELECTROVALVE
9	5 LT. PUMP	10	Lowering control valve	11	THREE-PHASE MOTOR
12	SUCTION FILTER	13	MAX. PRESSURE VALVE	14	OIL TANK
15	Double effect electrovalve	16	P2 Discharge control cock	18	DISCHARGE
19	HAND PUMP	20	ES ELECTROVALVE	25	PLAY DETECTOR PISTONS

HYDRAULIC PLANT "MIRACH LT-ATLT/PG"

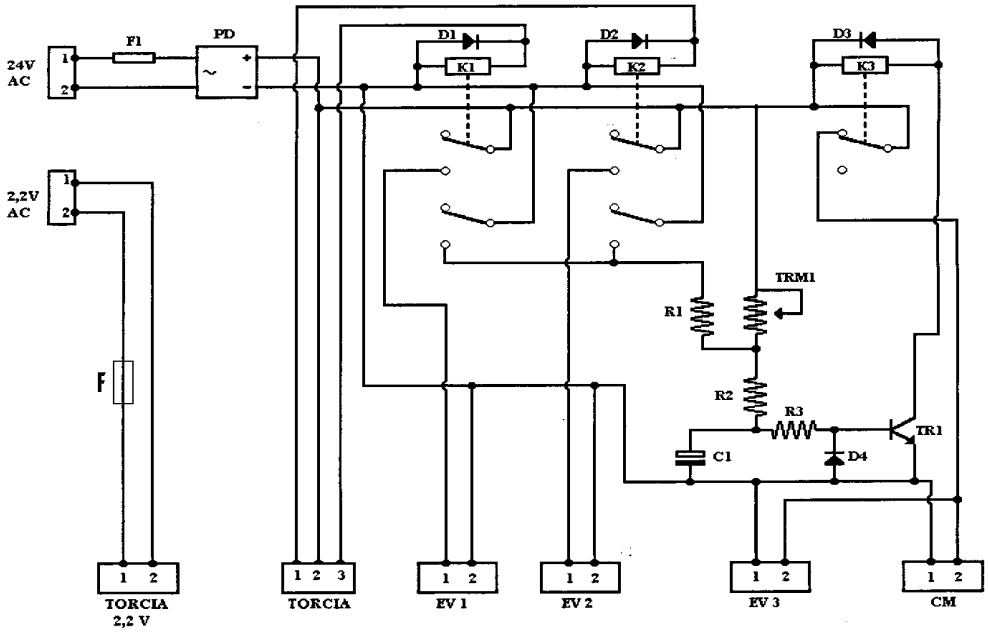


1	P1 PISTON	2	P2 PISTON	3	PARACHUTE VALVE
4	EOP ELECTROVALVE	5	EL ELECTROVALVE	6	P1 LIFT TABLE PISTON
7	P2 LIFT TABLE PISTON	8	ESP Lowering electrovalve	9	5 LT. PUMP
10	LOWERING CONTROL VALVE	11	THREE PHASE MOTOR	12	SUCTION FILTER
13	MAX. PRESSURE VALVE	14	OIL TANK	15	Double effect electrovalve
16	P2 DISCHARGE CONTROL COCK	18	DISCHARGE	19	HAND PUMP
20	ES ELECTROVALVE	25	PLAY DETECTOR PISTONS		

HYDRAULIC PLANT-COMMERCIAL PARTS
PLAY DETECTOR PG-40

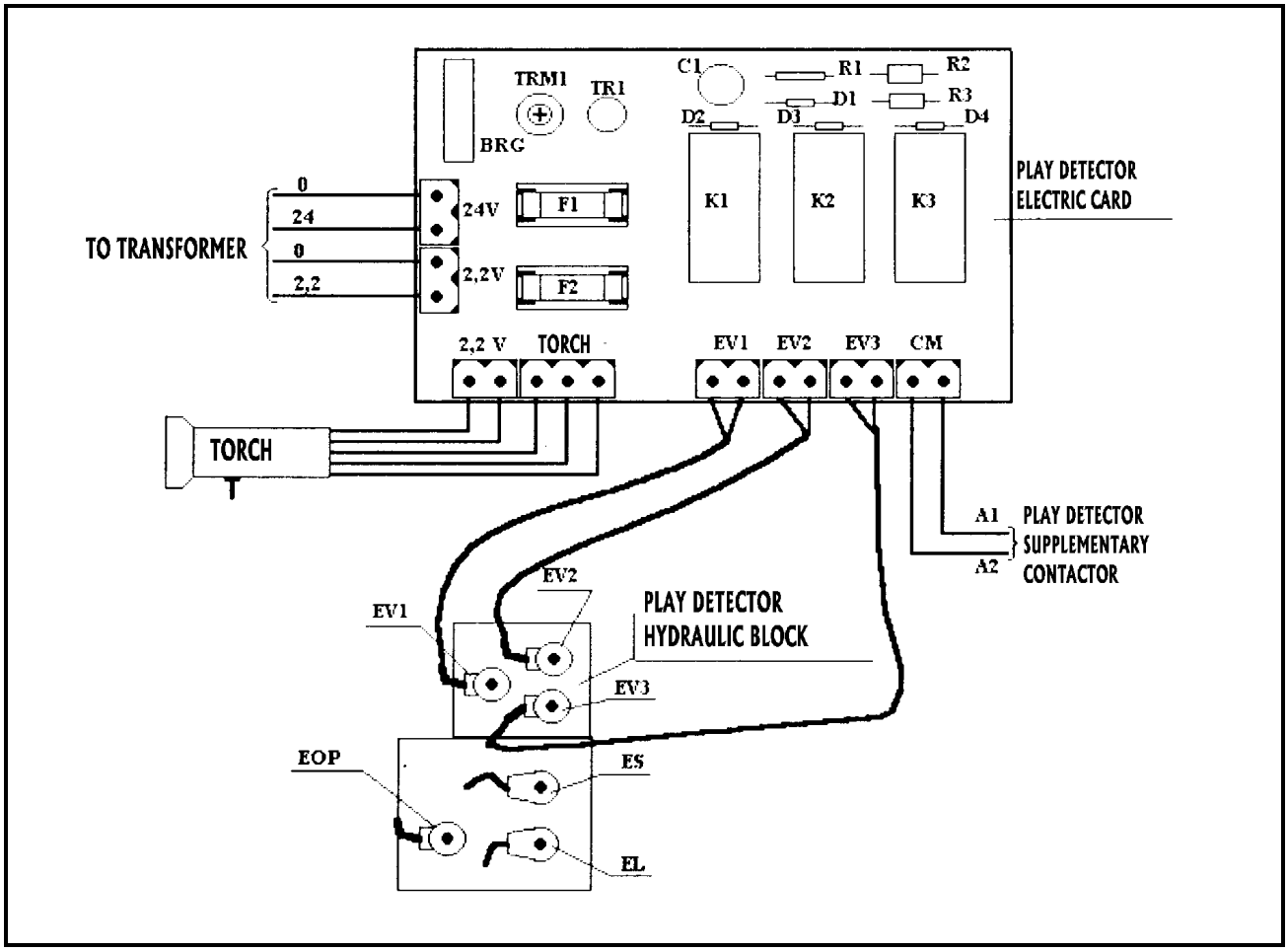
Denomination	Manufacturer	Type	
Oil tank	ROTARY LIFT		
Filter	FBN		
Pump	HYDROIRMA	UP10K163 MOD.291	250 Bar
Motor		220/380-3PM-50HZ 1400 RPM 3 KW 4HP IP54	
Max pressure valve	COMATROL	85/220 Bar	
Electrovalve	ATHOS	24 AC 50 HZ 20 W	250 Bar
Play detector piston	MONTI	Ø 25	300 Bar
R2 hydraulic pipe	ALFA GOMMA	VARIOUS	400 Bar
raccords	LARGA	VARIOUS	400 Bar

WIRING PLANT



F1	4A FUSE	TRM 1	TRIMMER 220 KΩ
PD	DIODE BRIDGE 4A	R1	½ W 10Ω RESISTOR
D1-D4	DIODE 1 N 4007	R2	½ W 15Ω RESISTOR
K1-K2	24V CC 2 RELAY	R3	½ W 3,5Ω RESISTOR
K3	24V CC 1 RELAY	TR1	2N 1893 TRANSISTOR
C1	220N F 63 V CONDENSER	F	1A FUSE

ELECTRIC CARD CONNECTIONS



"PLAY DETECTOR PG-40" WIRING PLANT COMMERCIAL PARTS

	Denomination	Manufacturer	Type	
	Electric wire	VARIOUS		
	Main switch	SPRECHER SCHUH	LE2-16-1754 16A	
L1	Feeding pilot lamp	SPRECHER SCHUH	SR 601	
	Fuse carrier	WEBER	25A-380V	
F1÷F6	Fuse	WEBER	VARI	
C1	Contactor	SPRECHER SCHUH	16A	
TR	"Play detector" transformer	LSP	102 VA/12-O-12V	
	Relays	FINDER	24V DC	
	Relays	FINDER	24V AC	
	Play detector electric card	ROTARY LIFT		
	Torch	DURACELL		

SCISSOR LIFT WITH RAMPS
MIRACH 40/97

MAINTENANCE BOOK

INITIAL TEST

N.	DESCRIPTION TEST	YES	NO	Note
1	FLOOR CONSISTENCY CHECK	•	•	•
2	SAFETY DISTANCE CHECK (FROM WALLS, COLUMN, CEILING, OTHER MACHINES ETC.)	•	•	•
3	POWER SUPPLY LINE CHECK	•	•	•
4	PNEUMATIC SUPPLY LINE CHECK	•	•	•
5	LIFT/LIFT TABLE LEVELLING CHECK	•	•	•
6	LIFT FUNCTION CHECK	•	•	•
7	LIFT TABLES FUNCTION CHECK	•	•	•
8	SLIDING PLATES FUNCTION CHECKS	•	•	•
9	PLAY DETECTOR FUNCTION CHECK	•	•	•
10	MECHANICAL SAFETIES FUNCTION CHECKS	•	•	•
11	ELECTRIC SAFETIES FUNCTION CHECK	•	•	•
12	LOADED LIFT CHECK	•	•	•
13	LOADED LIFT TABLES CHECK	•	•	•
14	LOADED PLAY DETECTOR CHECK	•	•	•
15	LIFT FIXING CHECK	•	•	•
16	OIL LEVEL CHECK	•	•	•
17	HYDRAULIC FAILURE CHECK		•	•
18	PNEUMATIC FAILURE CHECK	•	•	•
19	OPERATING INSTRUCTIONS	•	•	•

NOTES

INSTALLER STAMP AND SIGNATURE	USER STAMP AND SIGNATURE
Date	Next test on:

RECURRING OR OCCASIONAL VISITS				
N.	**DESCRIPTION OF TEST**	**YES**	**NO**	**Note**

1	LIFT MAINTENANCE AND CLEANING TEST	•	•	•
2	MECHANICAL SAFETIES FUNCTION CHECKS	•	•	•
3	ELECTRICAL SAFETIES FUNCTION CHECKS	•	•	•
4	OIL LEVEL CHECK	•	•	•
5	ROLLER SLIDES FASTENINGS	•	•	•
6	MOVABLE PARTS FASTENINGS	•	•	•
7	HIGH PRESSURE FLEXIBLE PIPE CHECKS	•	•	•
8	HYDRAULIC FAILURE CHECK	•	•	•
9	PNEUMATIC FAILURE CHECK	•	•	•
10	LIFT/LIFT TABLE LEVELLING CHECK	•	•	•
11	LOADED LIFT/LIFT TABLE CHECK	•	•	•
NOTES				
RESULT OF VISIT		POSITIVE	•	
		NEGATIVE	•	

Installer Stamp and signature	User Stamp and signature
Date	Next test on:

RECURRING OR OCCASIONAL VISIT				
N.	**DESCRIPTION OF TEST**	**YES**	**NO**	**Note**
1	LIFT MAINTENANCE AND CLEANING TEST	•	•	•
2	MECHANICAL SAFETIES FUNCTION CHECKS	•	•	•
3	ELECTRICAL SAFETIES FUNCTION CHECKS	•	•	•
4	OIL LEVEL CHECK	•	•	•
5	ROLLER SLIDES FASTENINGS	•	•	•
6	MOVABLE PARTS FASTENINGS	•	•	•
7	HIGH PRESSURE FLEXIBLE PIPE CHECKS	•	•	•
8	HYDRAULIC FAILURE CHECK	•	•	•
9	PNEUMATIC FAILURE CHECK	•	•	•
10	LIFT/LIFT TABLE LEVELLING CHECK	•	•	•
11	LOADED LIFT/LIFT TABLE CHECK	•	•	•
NOTES				
RESULT OF VISIT		POSITIVE	•	
		NEGATIVE	•	

Installer Stamp and signature	User Stamp and signature
Date	Next test on:

TESTS DURING USE	
1	Levelling check.
2	Hydraulic failure check.
3	Pneumatic failure check.
4	Safety devices working check.

MONTLY TESTS	
1	Lift through cleaning.
2	Rollers slides check.
3	Cylinders air bleeding (if necessary).

HALF-YEARLY TESTS	
1	Oil level check.
2	High pressure flexible pipes check.

IN CASE OF ANOMALY, STOP THE LIFT AND
CONTACT OUR SERVICE DEPARTEMENT IMMEDIATELY

REPAIR
FAILURE

ACTION

Date	Stamp and signature

REPAIR
FAILURE

ACTION

Date	Stamp and signature

EDITION OCTOBER 2000 BY THE GRAPHIC DEPARTEMENT (A.R.)