

NTO9A Installation Manual

Hydraulic Two-column Vehicle Lift

This instruction manual has been prepared especially for this kind lift operating.

This kind of lift is the product of many years of our continuous research; testing and development and is the most technically advanced lift on the market today.

READ and make sure fully understand THIS ENTIRE

MANUAL BEFORE OPERATION.

RECORD HERE THE FOLLOWING INFORMATION WHICH IS LOCATED ON THE NAMEPLATE FOR OUR FOLLOW-UP SERVICE

Serial No.	
Model No.	
Manufacturing Date	

WARRANTY

Your new lift is warranted for five years for equipment structure; one year for all operating components to the original purchaser, to be free of defects in material and workmanship.

The manufacturer shall repair or replace at their option for this period those parts returned to the factory freight prepaid which prove upon inspection to be defective.

This warranty does not extend to defects caused by ordinary wear, abuse, misuse, shipping damage, or lack of required maintenance.

This warranty is exclusive and in lieu of all other warranties expressed or implied. In no event shall the manufacturer be liable for special, consequential or incidental damages for the breach or delay in performance of the warranty. The manufacturer reserves the right to make design changes or add improvements to its product line without incurring any obligation to make such changes on product sold previously.

Warranty adjustments within the above stated policies are based on the model and serial number of the equipment. This data must be furnished with all warranty claims.

Before installation, first check whether every element is in perfect condition.

INTRODUCTION

 Carefully remove the crating and packing materials.

CAUTION! Be careful when cutting steel banding materials as items may become loose and fall causing personal harm and injury.

2. Inspect the lift for any signs of concealed shipment damage or shortages. Remember to

report any shipping damage to the carrier and make a notation on the delivery receipt.

 Check the voltage, phase and proper ampere requirements for the motor shown on the motor plate. Wiring should be performed by a certified electrician only.

CONSERVING THE MANUAL

The manual is an integral part of the lift, which it should always accompany even if the unit is sold. The manual must be kept in the vicinity of the lift in an easily accessible place so that the operator and maintenance staff must be able to locate and consult the manual quickly at any time.

ATTENTIVE AND REPEATED READING OF CHAPTER 3, WHICH CONTAINS IMPORTANT INFORMATION AND SAFETY WARNINGS, IS PARTICULARLY RECOMMENDED.

Lift rack has been designed and built in compliance with the following:

LAWS

Machinery Directives: 89/37/EC, EN60204-1; 1998, EN1493; 1997

The lifting, transport, unpacking, assembling, installation, starting up, initial adjustment and testing, EXTRAORDINARY maintenance, repair, overhauls, transport and dismantling of the lift must be performed by specialist personnel from the LICENSED DEALER or an SEVICE CENTRE authorized by the manufacturer (see authorized dealer on frontispiece).

The manufacturer declines all responsibility for injury to persons or damage to vehicles or objects when any of the above mentioned operations have been performed by unauthorized personnel or when the rack has been subject to abuse.

This manual indicates only the operative and safety aspects that may prove useful to the operator and maintenance works better understanding the structure and operation of the lift and for best use of the lift.

In order to understand the terminology used in this manual, the operator must have specific experience in workshop, service, maintenance and repair activities, the ability to interpret correctly the drawings and descriptions contained in the manual and be acquainted with the general and specific safety rules relevant to the country in which the machine has been installed.

The same applies to the maintenance fitter, who must also possess specific and specialized knowledge (mechanical, engineering) needed to perform the operations described in the manual in complete safety.

The words "operator" and "maintenance fitter" used in this manual are construed as follows:

OPERATOR: person authorized to use the lift.

WORKING CONDITIONS: 1. Regarding ambient temperature shall be 5-40°C.

- 2. Regarding humidity shall be 30-95%.
- 3 、Regarding transportation and storage temperature shall be between 25-55 $^{\circ}$ C , and short period no exceeding 24 hours at up to 70 $^{\circ}$ C .
- 4. Regarding installation altitude max 1000m.

MAINTENANCE FITTER: person authorized for routine maintenance of the lift.

The end user can only use the machine in correct way as defined in instruction.

Loose clothes shall not be used protection cap shall also be used for long hair person, etc.

The end user should provide the MSDS (Material Safety Data Sheet) at easy accessible place when providing lubrication.

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CHAPTER 1 DESCRIPTION OF THE MACHINE

The 2-post electro-hydraulic lift is a fixed installation. This means that it is anchored to the ground and built for Lifting and positioning automobiles and vans at a certain height off the ground.

The lift consists of the following main parts:

- Fixed structure (posts + upper beam);
- Mobile units (carriages + arms);
- 3. Lift units (2hydraulic cylinders + power unit);
- Control box;
- 5. Safety devices;

Figures 3 and 4 illustrate the various parts of the lift and the work areas reserved for use by operators around the lift.

Command side: this side of the lift includes the area reserved for the operator to access the control box.

Service side: this is the opposite side of the command side.

Front side: the side with the short arms.

Rear side: the side with the long arms.

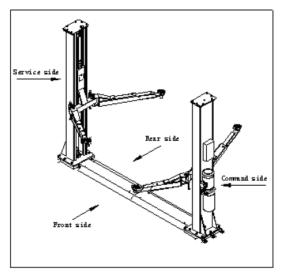


Fig.3

1.1 FIXED STRUCTURE (FIG.4)

This structure consists of:

- 2 posts, (service 15 and command 1 side post) built with bent steel plate. The base is welded to a drilled
 plate to be anchored to the floor. The electric control box and the hydraulic power unit are attached to the
 command post. Inside each post are the moving parts to lift the vehicles. The control panel and the
 hydraulic unit are fixed to the command post.
 - Column is installed on base. Base is composed of fixed mount 3, base frame 2 and floor plate 9.

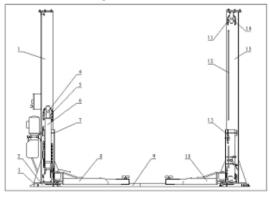


Fig.4
1.2 MOVING UNITS (SEE FIG.4)

Each unit consists of:

- One carriage (7 and 13) built with welded steel plate, linked by main chain 5 and assistant chain11, and at the bottom to the lift arms by means of pins.
 - The carriage moves along the post, guided by plastic sliding pads, located inside the post itself.
- Two telescopic arms, one long (8) and one short (10), built with tubular steel with a pad at each end that can be height adjusted to hold the car and on the opposite side the carriage connection hole.

1.3 LIFT UNIT (SEE FIG.4)

It consists of:

- 1 hydraulic cylinders (6) run under main chain's driving main adjustable shelf. While the main adjustable runs under assistant chain's driving assistant adjustable shelf.
- 2 1 hydraulic unit (see fig.5), on the command side, to set the cylinders run.

1.4 HYDRAULIC POWER UNIT (FIG.5)

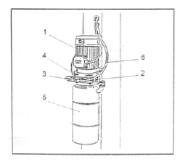
The hydraulic power unit consists of:

- An electric motor (1)
- 2. A geared hydraulic pump (2)
- Descent hand-valve (3) equipped with a manual oil drain valve (see the use and maintenance chapter)
- 4. A maximum pressure valve (4)
- Oil tank (5)
- 6. An oil delivery and return flexible pipe (6) to the cylinders feeding circuit

1.5 CONTROL BOX (FIG.6)

The panel that houses the electric control box contains the following:

- 1 Main switch
- 2 Rise push button
- 3 Down push button



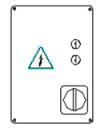
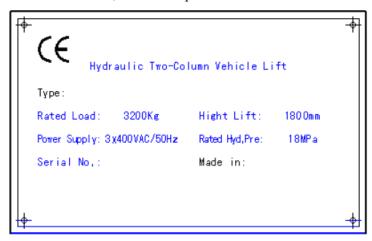


Fig.5 Hydraulic power unit

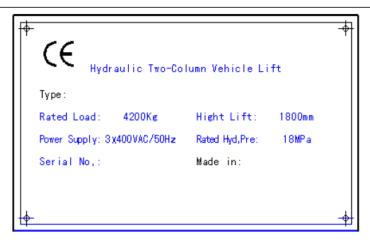
Fig.6 Control panel

1.6 NAMEPLATE

On the column, there is nameplate attached as shown below:



DTP607



DTP609

in this nameplate, there are information and parameter as:

- machine manufacture and address
- type
- series number
- machine parameter about electrical such as voltage/ampere/frequency/, and hydraulic pressure,
- lift height, weight
- date made in
- · CE mandatory mark
- Manufacture trade mark

1.7 SAFETY DEVICE

The safety devices include:

- 1 Mechanical safety device for carriage
- 2 Arms locking system
- 3 4 foot guards on the arms
- 4 2 post end limit switches
- 5 General electric safety devices
- 6 General hydraulic safety devices

These safety devices will be described in further detail in the following chapters

CHAPTER 2 TECHNICAL SPECIFICATIONS

CAPACITY	9000 lbs
Car max lifting height	72"
Lift min stand height	4"
Clearance between carriages	109"
Total width	136"
Rise time w/single phase motor	40sec
Descent time	18sec <t>45sec</t>
Total lift weight	1700 lbs

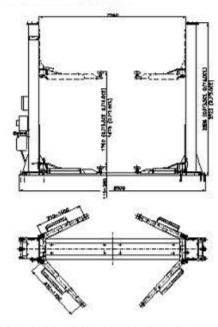


Fig.7 Dimensions and overall clearances

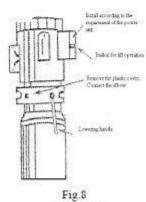
2.1 ELECTRIC MOTOR

	Three-phase	Single phase
Electric motor power rating	2.2KW	1.8KW
Voltage	230	230V1ph.+/-5%
Frequency	60 Hz	60 Hz
Absorption	230V: 11A 400V: 6.4A	13A
N° of poles	4	100.000
Speed	1400RPM	1380RPM
Construction	B14	
Insulation class	IP54	IP54
Type	90L4	90L4

The motor must be connected with reference to the attached wiring diagrams.

The motor rotation wise must be the same as shown by the arrow on the pump: if not, modify the electrical connections (see ch.4.INSTALLATION-electric plant connection)

2.2 HYDRAULIC UNIT PUMP



2.3 OIL

The oil reservoir contains hydraulic mineral oil in accordance with ISO/DIN 6743/4 with a level of contamination that does not exceed class 18/15 according to ISO 4406, for example IP HYDRUS OIL 32; SHELL TELLUS OIL T32 or equivalent.

2.4 HYDRAULIC OIL DIAGRAM

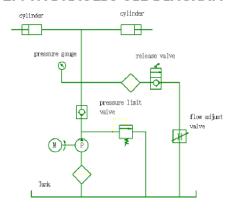


Fig.9Hydraulic system

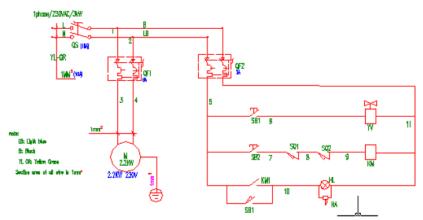


Fig.10 Single phase wiring diagrams

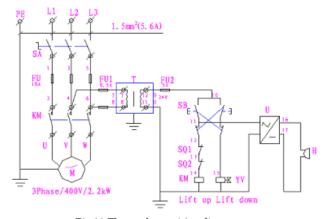


Fig.11 Three -phase wiring diagrams

2.5 VEHICLE WEIGHT AND SIZE

Lift rack can be adapted to virtually all vehicles no heavier than 9000lbs, the dimensions of which do not exceed the following:

2.6 MAXIMUM DIMENSIONS OF VEHICLES TO BE LIFTED

The underbody of cars with low ground clearance may interfere with the structure of the lift .Pay particular attention in the case of low body sports cars.

Always keep the capacity of the lift in mind in the case of vehicles with particular characteristics. THE SAFETY area will be determined by the dimensions of the vehicle.

The diagrams below include the criteria for defining the limits of use of the carrack.

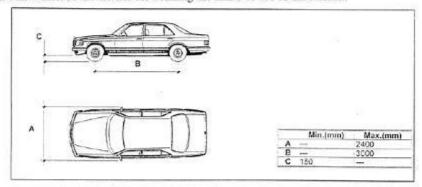


FIG 12 Minimum and maximum dimensions

CHECK MAXIMUM LOAD CAPACITY AND LOAD DISTRIBUTION IN CASE OF LARGER VEHICLES. MAXIMUM WEIGHT OF THE VEHICLE TO BE LIFT

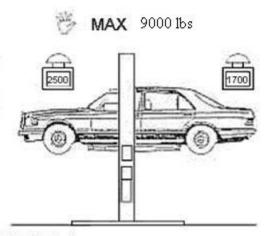


Fig. 13 Weight distribution

It is vital to read this chapter of the manual carefully and from beginning to end as it contains important information regarding the risks that the operator and the maintenance fitter may be exposed to in the eventuality that the lift is used incorrectly.

The following text contains clear explanations regarding certain situations of risk or danger that may arise during the operation or maintenance of the lift, the safety devices installed and the correct use of such systems, residual risks and operative procedures to use (general and specific precautions to eliminate potential hazards).

₹₩¥ WARNING

Lift is designed and built to lift vehicles and hold them in the elevated position in a closed workshop. All other uses are unauthorized; in particular, the lift is not suitable for:

- -Washing and respire work;
- -Creating raised platforms or lifting personnel;
- -Use as a makeshift press for crushing purpose;
- -Use as goods lift
- -Use as a jack for lifting vehicles or changing wheels.

THE MANUFACTURE DISCLAIMS ALL LIABILITY FOR INJURY TO PERSONS OR DAMAGE TO VEHICLES AND OTHER PCABLERTY CAUSED BY THE INCORRECT AND UNAUTHORISED USE OF THE LIFT.

During lift and descent movements, the operator must remain in the command station as defined in figure 14. The presence of persons inside the danger zone indicated in the same figure is strictly prohibited. The presence of persons beneath the vehicle during operations is permitted only when the vehicle is parked in the elevated position.

DO NOT USE THE LIFT WITHOUT PROTECTION DEVICES OR WITH THE PROTECTION DEVICES INHIBITED. FAILURE TO COMPLY WITH THESE REGULATIONS CAN CAUSE SERIOUS INJURY TO PERSONS, AND IRREPERABLE DAMAGE TO THE LIFT AND THE VEHICLE BEING LIFTED.

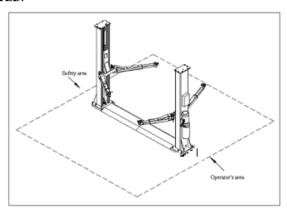


Fig.14 WORKING AREAS

CHAPTER 3 SAFETY INSTRUCTIONS BEFORE INSTALLATION 3.1 GENERAL PRECAUTIONS

The operator and the maintenance fitter are required to observe the prescriptions of accident prevention legislation in force in the country of installation of the lift.

Furthermore, the operator and the maintenance fitter must:

- 1. Always work in the scheduled working area as shown in the manual
- 2. Never remove deactivate the guards and mechanical, electrical, or other types of safety devices.
- 3. Read the safety notices affixed to the machine and the safety information in this manual.

In the manual all safety notices are shown as follows:

DANGER: indicates imminent danger that can result in serious injury or death.

WARNING: indicates situations and /or types of maneuvers that are unsafe and can cause injuries of various degrees or death.

CAUTION: indicates situations and /or types of maneuvers that are unsafe and can cause minor injury to persons and /or damage the lift, the vehicle or other psaltery.

3.2 RISKS OF ELECTRIC SHOCK:

Specific safety notice affixed to the lift in areas where the risk of electric shock is particularly high.

3.3 RISKS AND PROTECTION DEVICES

We shall now examine the risks to which the operator and the maintenance fitters may be exposed when the vehicle is immobilized in the raised position, together with the protection devices and adopted by the manufacture to reduce all such hazards to the minimum.

3.4 IMPORTANT SAFETY INSTRUCTIONS

Read these safety instructions entirely and understand thoroughly before operating the equipment. Failure to operate this equipment as directed may cause injury.

- 1. READ AND UNDERSTAND all safety warning procedures before operating lift.
- 2. KEEP HANDS AND FEET CLEAR. Remove hands and feet from any moving parts. Keep feet clear of lift when lowering. Avoid pinch points.
- KEEP WORK AREA CLEAN. Cluttered work areas invite injuries.
- 4. CONSIDER WORK AREA ENVIRONMENT. Do not expose equipment to rain. DO NOT use in damp or wet locations. Keep area well lighted.
- 5. ONLY TRAINED OR AUTHORIZED OPERATORS should operate this lift. All non-trained personnel should be kept away from working area. Never let non-trained personnel come in contact with, or operate lift.
- 6. USE LIFT CORRECTLY. Use lift in the proper manner. Never use lifting adapters other than receptacle before performing any electrical repairs. Secure plug so that it cannot be accidentally plugged in during service.
- 14. WARNING! RISK OF EXPLOSION. This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. This machine should not be located in a recessed area or below floor level.
- 15. MAINTAIN WITH CARE. Keep lift clean for better and safe performance. Follow manual for proper lubrication and maintenance instructions. Keep control handles and/or buttons dry, clean and free from grease and oil.
- **16. STAY ALERT.** Watch what you are doing. Use common sense. Be aware.
- 17. CHECK FOR DAMAGED PARTS. Check for alignment of moving parts, breakage of parts or any condition that may affect its operation. Do not use lift if any component is broken or damaged.
- 18. NEVER remove safety related components from the lift. Do not use lift if safety related components are damaged or missing.
- 19. REGARDING AMBIENT TEMPERATURE, shall be $5^{\circ}\text{C} \sim 40^{\circ}\text{C}$; regarding humidity, shall be $30 \sim 95\%$; regarding transportation and storage temperature, shall be between -25 \sim 55°C, and short period no exceeding 24 hours at up to 70°C.
- 20. THE REQUIRED INSTALLATION HEIGHT above sea level is less than 1000m.
- 21. SHOULD NOT EXCEED the rated lifting capacity declared in the manual.
- 22. RATED CAPACITY of each lift arm is not greater than one fourth (1/4) of the overall lifting capacity.

- what is approved by the manufacturer.
- 7. DO NOT override self-closing lift controls.
- 8. REMAIN CLEAR of lift when rising or lowering vehicle.
- 9. CLEAR AREA if vehicle is falling.
- 10. ALWAYS ENSURE that the safety is engaged before any attempt is made to work on or near vehicle
- DRESS PROPERLY. Non-skid steel-toe footwear is recommended when operating lift.
- 12. GUARD AGAINST ELECTRIC SHOCK. This lift must be grounded while in use to protect the operator from electric shock. Never connect the green and yellow wire to a live terminal. This is for ground only.
- 13. DANGER! The power unit used on this lift contains high voltage. Disconnect power at the
- 25. The field of motion of the load and of the lift shall be free of obstructions.
- 26. IT SHALL DRAW ATTENTION to the safe method of carrying the load and to the rule that, after raising a short distance, the vehicle shall be checked to ensure that it correctly and safely positioned.
- 27. The lift shall be observed by the operator throughout the whole lifting course.
- 28. IT SHALL BE FORBIDDEN for people to stand in the field of loading vehicle and of lifting parts during the lifting course.
- 29. IT IS FORBIDDEN to climb onto the loading vehicle and lifting parts when they are raised unless via a specially designed access.
- 30. ABOUT HYDRAULIC OILS. Hydraulic and lubricant oils used shall meet EU standard. MSDS shall be provided by the end user at the convenient place. The first supplied oil shall be replaced after 1000 used times. Then it shall be replaced after 3000 times.
- 31. LIFT ON & LIFT OFF. Use forklift with loading capacity of 5T to load the lift. Note: Special lifting belt shall be used and steel rope or other rope should not as a matter of abrasion of the lift.

The lifting way shown as below:



32. STORAGE TEMPERATURE. Regarding

23. DANGER. Travelling on lift is forbidden.

24. IT IS NECESSARY to refer to the complete operation instruction, especially for trouble-shooting.

transportation and storage temperature, shall be between -25 $^{\sim}55^{\circ}$ C, and short period no exceeding 24 hours at up to 70 $^{\circ}$ C.



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS, WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS AND MAY CAUSE PERSONAL INJURY OR DEATH. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE THIS MACHINE.

3.5 WARNING SIGNS ON LIFT

























3.6 INSTRUCTION OF WARNING SIGNS



Only trained personnel should operate the lift. If not, it may cause danger to the inexperienced operator or the inexperienced operator may cause damage to the lift under improper manner.



Only Authorized personnel should operate the lift. Persons that not be allowed should be away from the lift in case of danger appears.



Make sure where the four points of the vehicle are to let the lift arms touch the four points properly.



Safety stands shall be used under front and back end of the vehicle when removing or installing heavy components. Vehicle might incline or fall and cause injury if there are no safety stands under.



If lifting arms can not touch the lifting points of the vehicle, select proper height extenders to the arm to reach the lifting points of the vehicle.



Auxiliary tools, shelf for example, may reduce the load capacity of the lift.



Should not lift the vehicle over the limited lifting height, which means the lift should stop the lifting activity when the vehicle touches the limit switch. If not, the vehicle will burst the crossbeam overhead.



Keep feet clear of lift while the lift is lowering as it may injure the feet.



There should be adequate space for personnel's escaping in case the vehicle is in danger of falling.



Position vehicle with center of gravity midway between adapters. Otherwise the vehicle may loose its balance and fall.



Personnel should be away from lift when it is raising and lowering to avoid possible injury.



Do not rock the vehicle excessively while it is on lift. Vehicle may fall under violent rocking condition.

CHARTPTER 4 TOOLS REQUIRED

- Percussion Drill
- Masonry Bit(16mm)
- Hammer
- Gradienter
- Open-End Wrench Set(8mm ∼ 25mm)
- Square

- Monkey Wrench (350mm)
- Crow Bar
- Chalk Line
- Flat Screwdriver
- Tape Measure(5m)
- Needle Nose Pliers

IMPORTANT NOTICE

Do not attempt to install this lift if you have never been trained on basic automotive lift installation procedures. Never attempt to lift components without proper lifting tools such as forklift or cranes. Stay clear of any moving parts that can fall and cause injury. These instructions must be followed to ensure proper installation and operation of your lift. Failure to comply with these instructions can result in serious bodily harm and void product warranty. Manufacturer will assume no liability for loss or damage of any kind, expressed or implied resulting from improper installation or use of this product.

PLEASE READ ENTIRE MANUAL PRIOR TO INSTALLATION.

CHARPTER 5 INSTALLATION STEPS

5.1 STEP 1

5.2 STEP 2

(Selecting Site)

Before installing your new lift, check the following:

- LIFT LOCATION: Always use architects plans when available. Check layout dimension against floor plan requirements making sure that adequate space is available. 5m × 4m × 4m is recommended.
- OVERHEAD OBSTRUCTIONS: The area where the lift will be located should be away from overhead obstructions such as heaters, building supports, electrical lines etc.
- 3. DEFECTIVE FLOOR: Visually inspect the site where the lift is to install and check for cracked or defective concrete. All models MUST be installed on 2500 PSI concrete (tension ≥ 200kg/cm2, thickness ≥ 300mm) only conforming to the minimum requirements shown above. New concrete must be adequately dried by at least 28 days.
- Lift should be operated under condition with light not less than 300lux.
- Noise is less than 75 dB.

(Floor Requirements)

This lift must be installed on a solid, even concrete floor with less than 3-degrees of slope, consider a survey of the site and/or the possibility of pouring a new level concrete slab

WARNING

"DO NOT install this lift on any asphalt surface or any surface other than concrete.

"DO NOT install this lift on expansion seams or on cracked or defective concrete.

"DO NOT install this lift on a second / elevated floor without first consulting building architect.

"DO NOT install this lift outdoors unless special consideration has been made to protect the power unit from climate weather conditions.

5.3 STEP 3

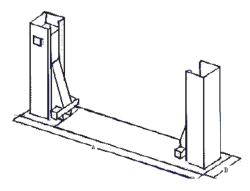
(Site Layout)

- 1. Determine which side will be the approach site.
- Now determine which side you prefer the power unit to be located on. The POWERSIDE column has the power-unit mounting bracket attached to the side. (See diagram above for power unit location)
- Once a location is determined, use a carpenter's chalk line to layout a grid for the post locations.
 Keep all dimensions and squareness within 1/8"or malfunctioning of the lift will occur.
- After the post locations are properly marked, use a chalk or crayon to make an outline of the posts on the floor at each location using the post baseplates as a template.
- Check all dimensions twice and make sure that the layout is perfectly correct.
- 6. Before continuing with the installation it is helpful to stand the posts up at their respective locations and get a visual of the shop, aisles and other clearances. Also, this is a good time to drive a vehicle into position and check for adequate clearance.

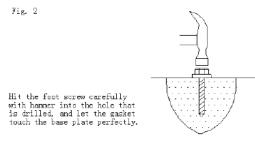
5.4 STEP 4

(Installing The POWERSIDE Column)

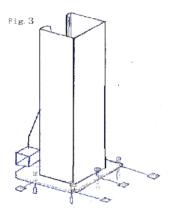
- Before proceeding, double check measurements and make certain that the bases of each column are square and in line with the chalk line.
- Using the baseplate on the POWERSIDE column as a guide, drill each anchor hole on the concrete approximately 7-1/2" deep using a Percussion Drill and 3/4" concrete drill-bit. To assure full holding power, do not ream the hole or allow the drill to wobble. (See Fig. 1)



- After drilling, remove dust thoroughly out of each hole using compressed air and/or wire brush. Make certain that the column remains aligned with the chalk line during this process.
- Assemble the washers and nuts on the anchors then tap into each hole with a hammer until the washer rests against the baseplate. Be sure that if shimming is required that enough threads are left exposed. (See Fig. 2)



 If shimming is required, insert the shims as necessary under the baseplate so that when the anchor bolts are tightened, the columns will be plumb. (See Fig. 3)



 With the shims and anchor bolts in place, tighten by securing the nut to the base then turning 2 -3 full turns clockwise. DO NOT use an impact wrench for this procedure. (See Fig. 4)



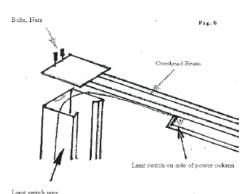
5.5 STEP 5

(Mounting The OFFSIDE column.)

 Position the OFFSIDE column at the designated chalk locations and secure to the floor following the same procedures as outlined in STEP FIVE.

NOTE:

To ease installation of the top beam on CLEARFLOOR models, it helps to keep the anchor bolts loose on one of the columns until the top beam is mounted.



5.6 STEP 6

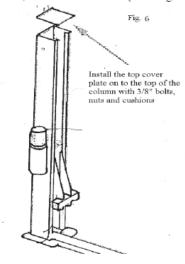
(Mounting the OVERHEAD BEAM.)

 Using a lifting device, raise the OVERHEAD beam in position on top of the columns. Bolt to the columns using the 3/8" x 1" Hex Bolts, Nuts and Washers. (See Fig. 5)

5.7 STEP 7

(Mounting the Top cover plate)

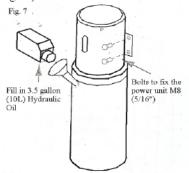
If your new lift is TPF209, there is no OVERHEAD beam. Bolt to the columns using the 3/8" x 1" Hex Bolts, Nuts and Washers. (See Fig. 6)



5.8 STEP 8

(Mounting The POWER UNIT)

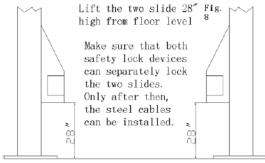
 Attach the power unit to the POWERSIDE COLUMN using four 5/16" hex bolts and lock nuts supplied. Fill the reservoir with 3.5 gallons 10 WT. HYDRAULIC OIL OR DEXRON TYPE III ATF. Make sure the funnel used to fill the power unit is clean. (NOTE: The hydraulic oil must be clean, if not ,the filtrated oil is needed. Or it may cause damage to power unit and jam to hydraulic cylinder. (See Fig. 7)



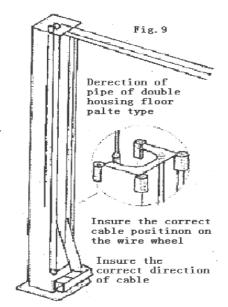
5.9 STEP 9

(Routing The EQUALIZER CABLES)

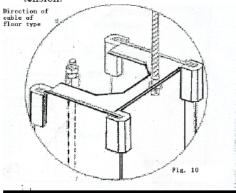
 Raise and lock each carriage approximately 28" above the ground. (See Fig.8)



- Make sure that the safety locks on each column are fully engaged before attempting to route equalizer cables. Carriages must be equal height from the floor before proceeding.
- With the carriages in equal position from the floor, route the equalizer cables as shown below. (See Fig. 9 & 10)



 After the equalizer cables have been routed. Adjust each cable so that they are equal tension.



IMPORTANT NOTE:

The equalizer cables should be checked once every week for equal tension. Failure to do this will cause uneven lifting.

The cables should always be adjusted so that they are equal tension when resting on the safety locks.

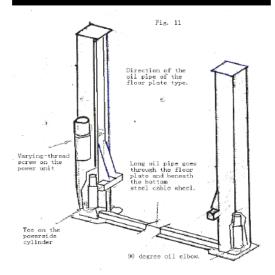
5.10 STEP 10

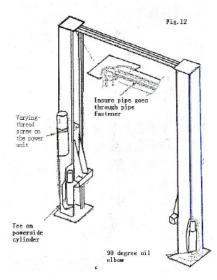
(Installing The Hydraulic Lines.)

- Install the hydraulic lines as shown below, paying careful attention to keep the hoses clean and free of impurities. (See Fig. 11 & 12.)
- When routing the hydraulic hose through the columns, make sure to route through the retaining rings welded inside each column.
- Make sure that the hose is clear of any moving parts.
- It may be necessary to tie hose clear by using Nylon tie straps or wire. Failure to keep hydraulic lines clear may result in hydraulic line failure which may further result in damage or personal harm.

IMPORTANT NOTE:

When installing hydraulic fittings and hoses it is not necessary to use Teflon tape or other sealant. Teflon tape and other sealing compounds can contaminate the system and cause malfunctioning of lift.

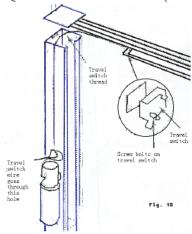




5.11 STEP 11

(Installing Overhead Limit switch.)

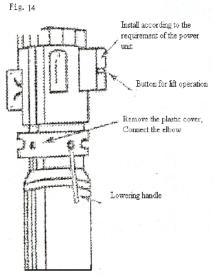
 Install the overhead Limit switch as shown below. Be sure to keep wire clear of moving parts. WIRING MUST BE PERFORMED BY AQUALIFIED ELECTRICIAN. (See Fig. 13)



5.12 STEP 12

(Installing the Power Unit)

 The standard power unit for your lift is 230 volt, 50HZ or 400 volt, 50Hz and single phase. All wirings must be performed by qualified electricians only. SEE WIRING INSTRUCTIONS ATTACHED ON MOTOR FOR PROPER WIRING INSTRUCTIONS. (See Fig. 14)



IMPORTANT INSTALLATION NOTES

- DO NOT run power unit without oil.
 Damage to pump can occur.
- The power unit must be kept dry. Damage to power unit caused by water or other liquids such as detergents, acid etc., is not covered under warranty.
- Improper electrical hook-up can damage motor and will not be covered under warranty.
- Motor can not run on 50HZ without a physical change in motor.
- Use a separate breaker for each power unit.
- Protect each circuit with time delay fuse or circuit breaker.

For 208-230 volt, 1P, use a 15 amp fuse. For 208-230 volt, 3P, use a 15 amp fuse. For 380-440 volt, 3P, use a 10 amp fuse.

WARNING

RISK OF EXPLOSION!! This equipment has internal arcing or sparking parts that should not be exposed to flammable vapors. Motor should not be located in a recessed area or below floor level.

TRIAL RUNNING AND EXHAUSTING AIR

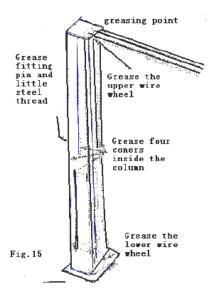
- Connect circuit, fill up with lubricate, press down power unit button. The lift raises and cylinder begins to work.
- Let the lift climb to the maximum height. DO NOT press the button if the lift rises to the maximum height, or it may result in power unit damage.
- 3. Keep 5-6 seconds after the maximum height.
- Withdraw the release cable; press the lowering handle to lower the lift.
- 5. Repeat the following course.

WARNING

During the whole lifting operation, observe all the operational units to check the correctness of operation. DO NOT lift vehicle when there is improperness.

GREASING

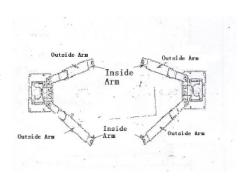
After trial run, grease the lift as described below. (See Fig. 15)



5.13 STEP 13

(Installing of Swing Arms.)

 Install swing arms as described below. Lubricate the carriage tube and all pivot point and pins prior to installation.



CHARPTER 6 WARNING OF OPERATING THE LIFT



6.1 IMPORTANT LEVELING INSTRUCTIONS

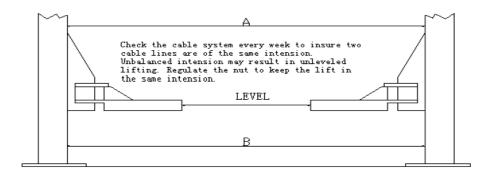
Before operating your lift, Make sure that both "A" and "B" measurements are EQUAL

LAYOUT PLAN

DTP609 DTF607 136"/3454mm 132"/3353mm

The swing arms must be Level before operation

Maximum of tolerance is 5mm. If your swing arms are not leveled, Wedge the columns as required.



6.2 TO RAISE LIFT

- Read Installation and operating manuals (this manual) before using the lift.
- Always lift a vehicle according to the manufacturer's recommended lifting points.
- Position vehicles between columns.
- Adjust swing arms so that the vehicle is positioned with the center-of-gravity midway between
 pads.
- Use truck adapters as needed. Never exceed 9" of pad height.
- Raise lift by pressing down button until supports contact the bottom of the vehicle. Re-check to make sure that the vehicle is secure.
- Raise vehicle to desired working height. Lower the vehicle into the safest position.

6.3 TO LOWER LIFT

- First, raise the lift to the clear safeties.
- Raise safeties by pulling handles on each column.
- Make sure that tool trays, stands or persons are removed or evacuated from under vehicle.
- Lower vehicle by activating lowering handle.
- Before removing vehicle from lift area, position the lift arms and the supports to provide an
 unobstructed exit.
- NEVER, drive over lift arms.

6.4 REQUIRED MONTHLY UPKEEP

- Check arm restrains for proper operation.
- Check all chain/cable connections, bolts and pins to ensure proper mounting.
- Visually inspect safeties for proper operation.
- Lubricate columns with grease.
- •Inspect all anchor bolts and retighten if necessary.
- Check columns for squareness and erectness.
- •Inspect all arm pivot pins to make sure that they are all properly secured.
- Check the tensions of equalizer cables, adjust if necessary.
- Inspect all lift pads, replace if necessary.
- If lift is equipped with overhead cut-off switch, check for proper operation.

WARNING

- If cement anchor bolts are loose, or any component of the lift is found to be defective, DO NOT USE LIFT.
- 2. Never operate the lift with any person or equipment below.
- 3. Never exceed rated capacity.
- 4. Always ensure that safeties are engaged before any attempt to work on or near the lift.
- 5. Never leave lift in an elevated position unless the safeties are engaged.
- Do not permit electric motor to be damp! Motor damage caused by dampness is not covered under the warranty.



NEVER LIFT ANY VEHICLE IN ANY MANNER WITH LESS THAN FOUR (4) ARMS. RATED CAPACITY OF EACH LIFT ARM IS NOT GREATER THAN ONE FOURTH (1/4) OF THE OVERALL LIFTING CAPACITY.

CHARPTER 7 POSSIBLE FAILURE AND REMEDY 7.1 LIFT WILL NOT RAISE

LIFT WILL NOT RAISE

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1 Air in oil (A, C, J & K)	A Check for proper oil level	The oil level should be up to the bleed screw in the reservoir with lift all the way down.
2 Cylinder binding (M)	B Remove check valve and inspect for contamination	Wash check valve in solvent and blow out with air. Re-install check valve.
	C Bleed cylinders	See installation manual.
3 Cylinder leaks internally (M)	D Flush release to get rid of possible contamination	Hold release handle down and start unit allowing it to run for 15 seconds.
4 Motor runs	E Dirty oil	Replace oil with clean Dextron II ATF.
backwards under pressure (B)	G Tighten all fasteners	Tighten fasteners per engineering specification #2.11.01.
5 Lowering valve leaks	H Check for free movement of release handle	If handle does not move freely, replace bracket or handle assembly.
(D, E, H, N & O)	I Check motor is wired correctly	Compare wiring of motor to electrical diagram on unit.
6 Motor runs backwards (I, & O)	J Check inlet tube length	Replace inlet hose assembly.
backwards (1, & O)	K Oil seal damaged or cocked	Replace oil seal around pump shaft.
7 Pump damaged (M, N, & O)	L Relief valve hung up on cap	To remove relief valve and free up valve.
	M See installation manual	
8 Pump won't prime (A, J, K, M, O & P)	N Replace with new part	
	O Return unit for repair	
9 Relief valve leaks (L, M, N, & O)	P Check pump mounting bolts	Bolts should be 15 to 18 ft lbs.
	P Check pump mounting bolts	Bolts should be 15 to 18 ft lbs.

7.2 MOTOR WILL NOT RUN

MOTOR WILL NOT RUN

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1 Fuse blown (E,B,A,C & D)	A Check for correct voltage	Compare supply voltage with voltage on motor nametag. Check that the wire is sized correctly. N.E.C. table 310 - 12 requires AWG 10 for 30A.
out (A,B,C & D)	B Check motor is wired correctly	Compare wiring of motor to electrical diagram on unit.
3 Microswitch burned out (A,B,C & D)	C Don't use extension cords	According to N.E.C. section 210-6 paragraph D: "The size of the conductorsshould be such that the voltage drop would not exceed 3% to the farthest outlet for power".
4 Motor burned out (A,B,C,D & F)	D Replace with new part E Reset circuit breaker / fuse	
5 Voltage to motor incorrect (B & A)	F Return unit for repair G See installation manual	

7.3 WILL NOT RAISE LOADED LIFT

WILL NOT RAISE LOADED LIFT

POSSIBLE CAUSE	REMEDY	INSTRUCTION
I Air in oil (A, B, D & F)	A Check oil level	The oil level should be up to the bleed screw in the reservoir with the lift all the way down.
2 Cylinder binding (G)	B Check/tighten inlet tubes	Replace inlet hose assembly and suction cover.
3 Cylinder leaks	D Oil seal damaged or cocked	Replace oil seal and install according to sheet #8.3.2.
internally (G)	E Remove check valve and inspect for contamination	Wash check valve in solvent and blow out with air. Re-install check valve.
4 Lift overloaded (G & H)	F Bleed cylinders G See installation manual	Refer to installation manual.
5 Lowering valve leaks	H Check vehicle weight	Compare weight of vehicle to weight limit of the lift.
(I, J, K, A & G) 6 Motor runs	I Flush valve	Hold release handle down and start unit allowing it to run for 15 seconds.
backwards (E, K & L)	J Replace with new part	10 000011001
	K Return unit for repair	
7 Pump damaged (G, J & K)	L Check motor is wired correctly	Compare wiring of motor to electrical diagram on unit drawing.
8 Pump won't prime (A, B, D, F, G & K)	M Relief valve hung up	Remove cap and free up, blow out with air.
9 Relief pressure incorrect (G, J & K)		
10 Relief valve leaks (M, J, K & G)	ž.	
11 Voltage to motor incorrect (L & G)		

7.4 LIFT WILL NOT STAY UP

LIFT WILL NOT STAY UP

POSSIBLE CAUSE	REMEDY	INSTRUCTION
Air in oil (A, D & F)	A Check oil level	The oil level should be up to the bleed screw in the reservoir with the lift all the way down.
2 Check valve leaks	D Oil seal damaged or cocked	Replace oil seal around pump shaft.
(E, H, I & J)	E Remove check valve and inspect for contamination	Wash check valve in solvent and blow out with air. Re-install check valve.
3 Cylinder leaks	F Bleed cylinders	Refer to installation manual.
Internally (J)	G Flush valve	Hold release handle down and start unit allowing it to run for 15 seconds.
4 Lowering valve leaks	H Replace with new part	
(G, H, I, A & J)	I Return unit for repair J See installation manual	
5 Leaking fittings	K Check complete hydraulic system for	

7.5 LIFT LOWERS SLOWLY OR NOT AT ALL

LIFT LOWERS SLOWLY OR NOT AT ALL

POSSIBLE CAUSE	REMEDY	INSTRUCTION
1 Cylinder binding	A See installation manual	
(A)	B Replace with new part	
	C Return unit for repair	
2 Release valve screen	D Use clean Dextron II ATF only	If ATF is contaminated, replace with clean ATF.
clogged	E Clean release valve	Wash release valve in solvent and
(E, B, D & C)	screen	blow out with air.

7.6 EXTERNAL OIL LEAK

EXTERNAL OIL LEAK

POSSIBLE CAUSE	REMEDY	INSTRUCTION				
1 Breather element full of oil (A.B.C&D)	A Check for proper oil level	The oil level should be up to the bleed screw in the reservoir with lift all the way down				
2 Allen plugs loose (E)	B Replace with new part C See installation manual D Use clean Dextron II					
	ATF only E Tighten all plugs	Tighten plugs per engineering specification #2.11.01.				
3 Loose tank (K)	F Return unit for repair G Tighten all hydraulic fittings					
4 Oil comes out	H Check/tighten inlet tube and cover	Replace inlet hose assembly and/ or suction cover.				
(A.D.B.C & F)	I Oil seal leaks	Replace oil seal around pump shaft.				
	J Bleed cylinder	Refer to installation manual.				
5 Oil comes out tank mounting (E)	K Tighten tank mounting bolts	Tighten per engineering specification#2.11.01.				
6 Hoses/fittings loose (C.G)						
7 Air in oil (H.I.J)						

7.7 UNUSUAL NOISE

UNUSUAL NOISE

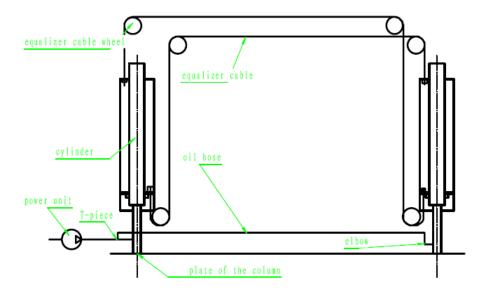
	POSSIBLE CAUSE	REMEDY	INSTRUCTION
1	Air in oil (A.B.D&F)	A Check for proper oil level	The oil level should be up to the bleed screw in the reservoir with lift all the way down.
2	Lift overloaded (G & H)	B Check/tighten inlet tubes	Replace inlet hose assembly and suction cover.
3	Motor burned out	D Oil seal damaged or cocked	Replace oil seal around pump shaft
(K.I.M.I & J)		E Remove check valve and inspect for contamination	Wash check valve in solvent and blow out with air. Re-install check valve.
4	Motor mounting bolts loose (N)	F Bleed cylinders	Refer to installation manual.
5 b	Motor runs ackwards (L.E& J)	G Check vehicle weight	Compare weight of vehicle to weight limit on the lift.
		H See installation manual	
6	Pump damaged	I Replace with new part	
	(H.I & J)	J Return unit for repair	
		K Check for correct	Compare supply voltage with
		voltage	voltage on motor instruction. Check
			that the wire is sized correctly. N.E.C.
			table 310-12 requires Awe 10 for 30A.
7	Pump won't prime	L Check motor is wired	Compare wiring of motor to
	(A.B.D.E.H.I& P)	correct	electrical diagram on unit drawing.
8	Relief valve leaks (H.I.J & O)	M Don't use extension cords	According to N.E.C. section 210-6
9	Voltage to motor	N Tighten all fasteners	Tighten fasteners per
	incorrect		engineering specification#2.11.01.
	(I.& H)	O Relief valve hung up	Remove relief valve and blow relief out with air.
		P Pump bolts loose	Tighten fasteners per engineering specification#2.11.01.

CHARPTER 8 PARTS list

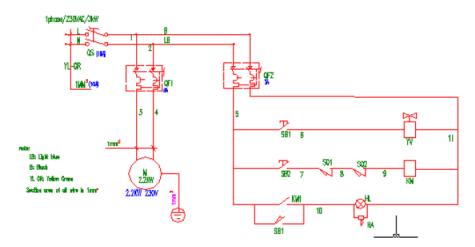
PART(S) DESCRIPTION	QTY.	WHERE USED	CHECK
Lift Pads	4	Lift Pads For Arms	
3"Lift Pad Adapters	4	Lift Pad Extensions	
Fixing pin	4	To link the lifting arm and carriage	
Balancing Cables	2	Equalizer Cables	
Lot Shims		To Shim / Level Lift	
Anchor Bolts	10	Concrete Anchors	
Tee	1	Fixed on the Oil cylinder	
90 Degree Fitting For Cylinder	1	Hydraulic Fitting For Offside Cylinder	
Varying-thread 90 Degree Fitting For Power Unit	1	Hydraulic Fitting For Power Unit	
Limit switch (with wire)	1	Fixed on the overhead beam	DTPO607, DTPO609
Plastic lid	2	Fixed on the sliding table	
B-Type clap	6	Used for the safety shaft and steel cable pulley	
3/8"×25 Hex Bolts And Hex Nuts	4	To Concrete Column And Cover plate	
5/16"×1Hex Bolts And Hex Nuts	4	For Mounting Power Unit	
Oil pipe with 90 degree elbow	1	Connecting the power unit and oil cylinder	Long, short each respectively
Spring	2	Fix the unlock block	. ,
Oil cylinder	2	Fixed inside the column	
Instruction Manual	1	Instruction Manual	
Leaf Chain	2	To Link Column and Carriage	
Lifting wheel	2	Fixed on the oil cylinder	
Packing list			
Power Unit	1	Electric / Hydraulic Power Source	
Powerside Column / With Mtg. Plate	1	Power side Column with slide, cable, and cylinder	
Offside Column / No Mtg. Plate	1	Offside column with slide, cable, and cylinder	
Coverplate / Floorplate Models Only	1	With limit switch and wire	No Limit switch on DTPF607, DTPF609
Lift Arms	4		

CHARPTER 9 TECH DIAGRAM

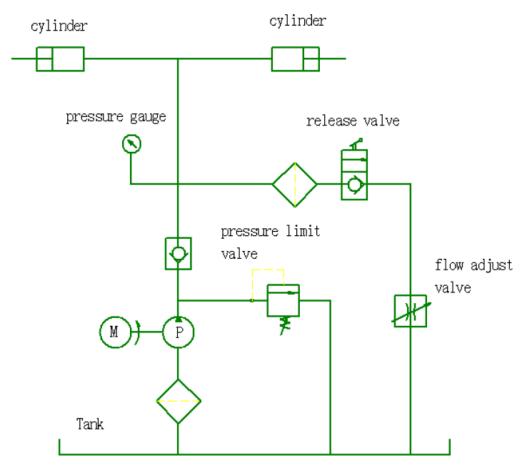
9.1 SCHEMATIC DIAGRAM OF THE LIFT



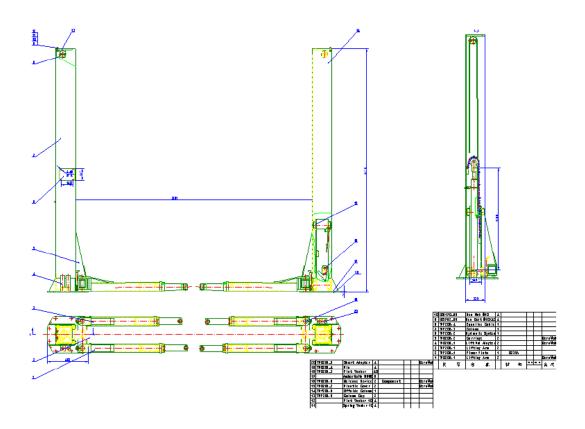
9.2 SINGLE PHASE ELECTRIC SCHEMATIC DIAGRAM



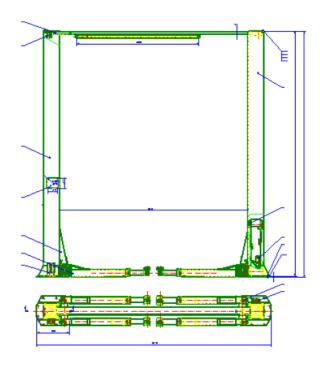
9.3 HYDRAULIC SHEMATIC DIAGRAM

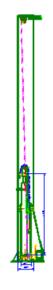


9.4 DTPF607, DTPF609



9.5 DTPO607, DTPO609





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