A cabinet is provided for housing all equipment necessary to provide motion and control to a hydraulic lift(s). Preferably, the cabinet includes an oil sump or reservoir that prevents spillage of oil. An electrical isolation mat 8 may be provided within an inside cover of a lid of the cabinet. Removable left and right side panels may be provided to allow access and ventilation. The cabinet may comprise two separate parts for ease of transport and delivery. A lower part 7 of the cabinet may be provided with castors 6 to aid installation. Lockable doors 9 may be provided.
FIGURE 1

TO BE BOLTED TOGETHER ON FLANGE

1.  
2.  
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11.  
12.
Description of CMRS – (Complete Motor Room Solution)

This invention is a solution to house all of the control components of a hydraulic lift, (either passenger or goods) including the electrical controls and hydraulic equipment and all associated equipment normally found in a self contained machine room, within a cabinet. Although the concept of containing some of these items into a Motor Room Less solution. This design uses several unique features incorporated in the design which would not be otherwise included

Background

At present Machine rooms for hydraulic lifts tend to be contained or installed in either the lift shaft as a Motor Room Less (MRL) solution or in a Conventional self contained room. In the case of the MRL the equipment is accessed through a door into the lift shaft or via the lift shaft itself. In the case of the self contained room, equipment is fitted as dictated by the layout and fixed to the walls of the room and sometimes the floor.

The MRL solution, although relatively space saving, does have access and Health and Safety limitations due to its cramped position and does not lend itself to future upgrade or modernisation as well. In some cases serviceability can be an issue and due to its size and location, auxiliary equipment can be difficult to store within the shaft. With regards to the Conventional design, this utilises much more space and is time consuming to install. Most lift installers tend to allow between 2 to 5 days for the installation of either option and mistakes can occur when installing as the equipment has to be tested as a whole once assembled. Most items are heavy to transport and often require at least 2 people to manhandle into position

Statement of Invention

To overcome the above, this present invention proposes some unique features to assist installation and reduce the time and labour necessary to install and much of the testing can be done in the factory

Firstly the cabinet is split into 2 parts, the lower part containing the hydraulic power unit (valves, motor and pump). This part of the cabinet has rollers/castors fitted to the base to enable one person to easily wheel the unit into position and is designed to take the full weight of the power unit fully laden with oil. This lower half doubles up as a self containing oil sump for any leakages (which replaces the sump normally provided by means of a separate oil try designed around the power unit). The lower half of the cabinet has 3 removable side panels to allow connection of the hydraulic hose pipe from the lift cylinder in order to allow any entry point to suit the installation.

In addition the lower of the door is removable and folds down to allow the inner face of this to become and electrical isolation mat on which the engineer/inspector can stand thus limiting the possibility of electric shock and is part of the necessary lift installation normally provided by a permanent or rolled up rubber isolation mat

Once in position the site engineer can lift the top half of the cabinet on top of the lower half flange and bolt together. The upper half containing the lift controls also
has 3 removable cable entry points depending upon where the incoming supplies are fed. An electrical isolator, consumer unit (where applicable), light unit, power socket and ventilation unit are all housed in the upper half and every electrical component is pre wired. The electrical connections between the terminal block on the hydraulic unit and control panel are made using male/female connector blocks.

Once in position the complete cabinet can be fixed to a wall if required using brackets fitted to the rear or side walls of the cabinet

All relevant statutory warning and instruction notices together with the circuit drawings and log card are fitted to the inner face of the door

The complete motor room solution CMRS can be installed by one person within a matter of hours and no electrical hard wiring is necessary and all that is subsequently required is to connect the incoming supplies to the isolator and consumer unit (if applicable) which are located outside the cabinet

**Advantages**

- Factory tested to reduce time
- Pre installed to alleviate human error
- Encompasses all statutory equipment in one cabinet
- Negates the use of a separate room ir increased lift shaft dimensions thus saving floor space
- Cabinet can be produced to blend in with surroundings
- Lockable cabinet to prohibit unauthorised access
- Quick and easy to assemble and install
- The material cost is cheaper than traditional site assembly using individually procured components
- Can be installed in advance of the main lift shaft equipment
- Able to accommodate any hydraulic lift up to 16 person’s capacity and 7 floors with a dual range of cabinets and castor assemblies
- Can be moved during installation until final positioning is required
- Is pre-compliant with Current standards for lift Installations
- Cabinet naturally contains oil spillages
Notes

a) All cables, hose, pipe entries to be provided on both sides + rear to allow all combinations

b) Ventilation to be designed to allow moveable fixed vents to accept force ventilation

c) Castors to take 600kg across all 4 – to allow for oil fill. Design plinth if these are to be removed later

Key

1. See b) above

2. Control panel chassis to be fixed to rear of cabinet with “safety door” to prevent electric shock when handle locking. Diagnostic tool “plug in journey counter to indicate all movements inc dial up when set no reached.

3. See a) above

4. See a) above

5. Pre-wired plug in loom to motor + valve block etc. Load weigher, mains, overtemperature

6. See c) above. These may be removed if plinth is required to replace this when permantly sited.

7. Bottom cabinet sealed to contain oil leaks and act as “tank”.

8. Removable or “fold out” rubber mat laminated to stiff backing making it easier to store

9. Lockable doors to prevent unauthorised access

10. See 9 above – must be able to change to either side

11. Prewired lighting/emergency lighting/RCD

12. Cabinet overtemp sensor (either hand)
FIGURE 1  Key:

1. SEE NOTE B.

2. CONTROL PANEL CHASIS TO BE FIXED TO FRONT OF CABINET WITH "SAFETY DOOR" TO PREVENT ELECTRIC SHOCK WHEN HAND LOWERING.
   CONTROL PANEL TO INCLUDE:
   DIAGNOSTIC TOOL "PLUG-IN"
   JOURNEY COUNTER TO INDICATE ALL MOVEMENTS, INCL. DIAL-UP WHEN PRE-SET JOURNEYS HAVE BEEN REACHED.

3. SEE NOTE A.

4. SEE NOTE A.

5. PRE-WIRED PLUG-IN LOOM TO MOTOR & VALVE BLOCK, ETC, LOAD WEIGHER,
   MAINS SUPPLY, OVERTEMP.

6. SEE NOTE C. THESE MAY BE REMOVED IF PLINTH IS REQUIRED TO REPLACE THIS WHEN PERMANENTLY SITED.

7. BOTTOM CABINET SEALED TO CONTAIN OIL LEAKS AND ACT AS A "TANK".

8. REMOVEABLE OR "FOLD-OUT" RUBBER MAT LAMINATED TO STIFF BACKING MAKING IT EASIER TO STORE.

9. LOCKABLE DOORS TO PREVENT UNAUTHORISED ACCESS.

10. LOCKABLE MAIN SWITCH & CONSUMER UNIT - MUST BE ABLE TO CHANGE TO EITHER SIDE.

11. PRE-WIRED LIGHTING / EMERGENCY LIGHTING / RCD.

12. CABINET OVERTEMP SENSOR (EITHER HAND).

Notes:

A. ALL CABLE, HOSE & PIPE ENTRIES TO BE PROVIDED ON BOTH SIDES & REAR TO ALLOW ALL COMBINATIONS.

B. VENTILATION TO BE DESIGNED TO ALLOW MOVEABLE FIXED VENTS TO ACCEPT FORCED VENTILATION.

C. CASTERS TO TAKE 600kg+ ACROSS ALL FOUR TO ALLOW FOR OIL FILL.
   (DESIGN PLINTH IF THESE ARE TO BE REMOVED LATER.)
   * WEIGHT BASED UPON 8-PERSON, 4-FLOOR LIFT UNIT.
CLAIMS

1. A CONTROL PANEL CABINET ENCOMPASSING AND HOUSING ALL NECESSARY EQUIPMENT TO PROVIDE MOTION TO A HYDRAULIC LIFT
2. CABINET DESIGN INCLUDES IN BUILT FEATURES SUCH AS OIL SPILLAGE RETENTION, ELECTRICAL ISOLATION AND ALL STATUTORY MAINTENANCE REQUIREMENTS AS PROVIDED IN THE RELEVANT LIFT STANDARDS
3. PRE-WIRED EQUIPMENT AND INTERFACES BETWEEN ELECTRICAL CONTROL AND HYDRAULIC POWER REDUCE INSTALLATION TIME AND POTENTIAL FOR HUMAN ERROR
4. UNIT CAN BE COMPLETELY ASSEMBLED AND INSTALLED BY ONE PERSON IN LESS THAN 4 HOURS
5. CABINET IS SEPRATED INTO TWO SEPERATE PARTS FOR EASE OF TRANSIT AND DELIVERY
6. LOWER PART OF CABINET HAS CASTORS FITTED TO FACILITATE MOVEMENT FROM DELIVERY VEHICLE INTO ULTIMATE PERMANENT POSITION
7. CABINET CAN BE TEMPORARILY MOVED AROUND DURING INSTALLATION (SUBJECT TO CABLE LENGTH) IF REQUIRED UNTIL FINAL POSITION IS REQUIRED
8. CABINET ONLY REQUIRES FIRST FILL OF OIL AND INCOMING POWER SUPPLIES AND SHAFT CONNECTIONS WIRED IN TO COMPLETE MOTOR ROOM REQUIREMENTS
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

<table>
<thead>
<tr>
<th>Category</th>
<th>Relevant to claims</th>
<th>Identity of document and passage or figure of particular relevance</th>
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<tr>
<td>X</td>
<td>1 to 4, 7, 8</td>
<td>EP1148018 A1 (MITSUBISHI) See figures, and paragraphs [0011] and [0012].</td>
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<tr>
<td>X</td>
<td>1 to 4, 7, 8</td>
<td>WO2006/024894 A1 (OTIS) See controller device 19, and page 3 lines 1 to 24.</td>
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<tr>
<td>X</td>
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<td>WO02/094698 A1 (MAC PUAR) See figures, EPDOC English abstract, and WPI English abstract accession no. 2003-175097/17.</td>
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<td>1 to 4, 6 to 8</td>
<td>JP61221075 A (TOSHIBA) See figures, EPDOC English abstract, and WPI English abstract accession no. 1986-300700/46.</td>
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<tr>
<td>X</td>
<td>1 to 4, 7, 8</td>
<td>US6044933 A (JOHANSSON et al.) See figures 2a to 2c, and column 3 line 20 to column 4 line 37.</td>
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Categories:

| X | Document indicating lack of novelty or inventive step. |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. & | Member of the same patent family |
| A | Document indicating technological background and/or state of the art. |
| P | Document published on or after the declared priority date but before the filing date of this invention. |
| E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC:

Worldwide search of patent documents classified in the following areas of the IPC

B66B

The following online and other databases have been used in the preparation of this search report

Online: WPI, EPDOC, TXTE

International Classification:

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