



### Experiments

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17. Two-Cylinder Sequencing (A+B+/A-B-) using Double-Solenoid Valves
18. Two-Cylinder Sequencing (A+B+/Timing/A-B-) using Double-Solenoid Valves

#### UH-001 Hydraulic Workbench

The workbench has a flexible design to serve each individual purpose. Moveable mounting frame, whereas the actual workbench is supplied to meet customer's request.

For instance, the number of drawers, the type of panel (single or twin), etc., are all tailored to the needed design of the customer. It can be supplied with two separate operating circuits as well, including two pumps of minimum 50 bar (49 kg/cm<sup>2</sup>) and 3.26 l/min each.

It is a mobile, two-sided, self-contained workplace to be used for connecting the required equipment such as Hydraulics, Electro-hydraulics and Programmable Logic Controller (Optional).

The workbench mainly consists of :

- Electro-Modules Frame UE-001
- Working Board UH-001-1
- Working Table UH-001-2

### PLC-200, PLC Trainer (Optional)

#### Specifications:

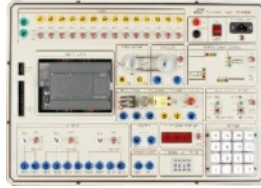
- PLC main unit : SIMENS SIMATIC S7-224
- Digital input : 14 Points, Digital output : 10 Points

#### Accessories:

- Power cord
- Experiment manual (English version)
- Connector leads set

#### PLC Trainer Requirements

- PC with Pentium II or better CPU
- Windows 98/2000/XP/VISTA
- USB/PPI Multi-Master Cable (necessary but optional)
- S7-200 User's manual (optional)
- STEP 7-Micro/WIN software CD (necessary but optional)



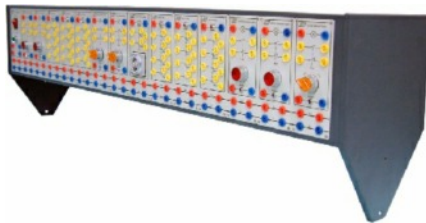
### UE-001, Electro-Modules Frame (excluding electrical components)

A cabinet frame is available for mounting electrical components on either side.

This frame can accommodate up to 15 electro-modules at least.

Steel material with gray coating of IC spray.

Size: 1260 mm(W) x 250 mm(D) x 360 mm(H)±10%



### UH-001-1, Working Board

Double-side aluminum extruded profile panel with 1260 x 750mm, and with a total working surface of 1200 x 700 mm. Including :

- UH-801 Pressure Distributor  
4 Quick copulings with 1 pressure gauge  
Connect to Hydraulic Power Unit using 3/8" hose
- UH-803 Return Distributor  
4 Quick couplings Connect to Hydraulic Power Unit using 3/8" hose



### UH-001-2, Working Table

- Single-side worktable with 1500 mm(W) x 700 mm(D) x 850 mm(H) ±10%, oil-catcher setting upon the table.
- Two drawer units in steel with four drawers of depth 560 mm, width 490 mm and height 130 mm (3drawers) and 190 mm (1drawer), load up to 20 kgs per drawer.
- Double-side worktable with 1500 mm(W) x 800 mm(D) x 850 mm(H)±10%, two oil-catcher setting upon the table.
- Two drawer units in steel with four drawers of depth 560 mm, width 490 mm and height 130 mm (3drawers) and 190 mm (1drawer), load up to 20 kgs per drawer. The drawers feature an easy-gliding system with differential rollers for quiet running and additional breaking system.
- A cabinet is also available for mounting Hydraulic Power Unit UH-101 on either side.



### UH-101, Hydraulic Power Unit

Single-side tank capacity is 30 liters, Double-side tank capacity is 58 liters excluding circulation oil

Recommend circulation oil type : Shell Tellus 32

Circulation oil typical characteristics :

- Kinematic Viscosity : 31.56 cSt at 40°C
- Viscosity Index : 102
- Pour Point : -15°C

The set of equipment includes :

- Electric motor: 1 HP 1Ø 220VAC, 50/60Hz, speed 1720 rpm
- Coupling
- Oil strainer
- Oil level indicator
- Oil-in and air filter
- Pressure relief valve pressure 150kg/cm2 max.
- Pressure gauge
- Oil thermometer
- Pressure pump: delivery 1.9cc/rev max.(single-side 1 pump, double-side 2 pumps)
- Distributor: including completed distribution assembly
- 220VAC power socket, 20 A breaker, over current protection, start switch, stop switch, indicator, and emergency device.



### Hydraulic Components

#### UH-111, Pressure Gauge

- Operating pressure: 0 - 150 kg/cm2
- Quick plug-in locking, safely clamping for mounting on working board
- Precision quick connectors located on the top of component for easy access



#### UH-116, Accumulator

- Bladder type
- Capacity: 1 liter
- Operating pressure: 0 - 100 kg/cm2
- Preset pressure: 30 kg/cm2
- Attached accumulator, pressure regulator valve base.
- Attached out/inlet valve, pressure gauge

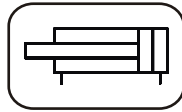


#### UH-121, Inline Flow Meter

- Material: aluminum AND/OR brass
- Measuring range: 1 - 7.5 l/min
- Operating pressure: 0 - 245 kg/cm2



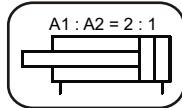
UH-201



### Double-Acting Hydraulic Cylinder

Diameter: 30 mm  
 Stroke length: 200 mm  
 Surface area ratio: 1.65:1 approx.  
 Operating pressure: 0 - 140 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board

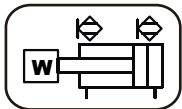
UH-203



### Differential Hydraulic Cylinder

Diameter: 30 mm  
 Stroke length: 200 mm  
 Surface area ratio: 2:1 approx.  
 Operating pressure: 0 - 140 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board

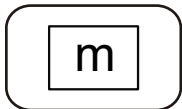
UH-205



### Double-Acting Hydraulic Cylinder

With position sensing  
 Diameter: 30 mm  
 Stroke length: 200 mm  
 Surface area ratio: 1.65:1 approx.  
 Operating pressure: 0 - 140 kg/cm<sup>2</sup>  
 Stainless steel body attached reed switch 2ea

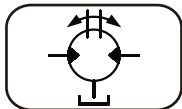
UH-205-1



### Loading Weight

Material : iron  
 Weight : 10 kg

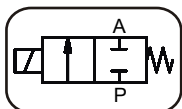
UH-211



### Hydraulic Motor

Min. rotary speed : 40 rev/min  
 Max. flow rate : 20 l/min  
 Attached rotary disc  
 Quick plug-in locking, safely clamping for mounting on working board

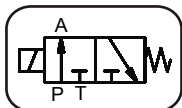
UH-401



### 2/2-Way Single-Solenoid Valve

Spring return  
 Solenoid operating voltage: 24 VDC  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Max. operating frequency: 240 times/min  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

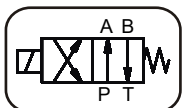
UH-403



### 3/2-Way Single-Solenoid Valve

Spring Return  
 Solenoid operating voltage: 24 VDC  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Max. operating frequency: 240 times/min  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

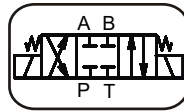
UH-405



### 4/2-Way Single-Solenoid Valve

Spring return  
 Solenoid operating voltage: 24 VDC  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Max. operating frequency: 240 times/min  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

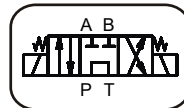
UH-411



### 4/3-Way Double-Solenoid Valve

Closed center  
 Solenoid operating voltage: 24 VDC  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Max. operating frequency: 240 times/min  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

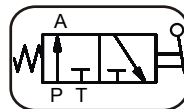
UH-419



### 4/3-Way Double-Solenoid Valve

Center PT type  
 Solenoid operating voltage: 24 VDC  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Max. operating frequency: 240 times/min  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

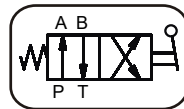
UH-503



### 3/2-Way Directional Control Valve

NC type  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

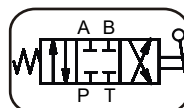
UH-505



### 4/2-Way Directional Control Valve

Hand lever operated, spring return  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

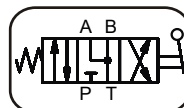
UH-511



### 4/3-Way Directional Control Valve

Closed center, spring return  
 Actuation : direct operated  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

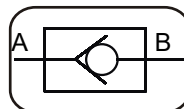
UH-517



### 4/3-Way Directional Control Valve

Center ABT type, spring return  
 Actuation : direct operated  
 Max. flow rate: 50 l/min  
 Operating pressure: 0 - 210 kg/cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

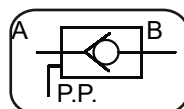
UH-601



### Check Valve

One-way control  
 Max. flow rate: 30 l/min  
 Operating pressure: 5 - 210 kg/cm<sup>2</sup>

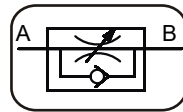
UH-603



### Pilot-Operated Check Valve

Max. flow rate: 30 l/min  
 Operating pressure: 3.5 - 210 kg/cm<sup>2</sup>

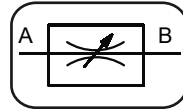
UH-611



### Flow Control Valve

Attached non-return, one-way flow control  
 Max. flow rate: 40 l/min  
 Operating pressure: 5 - 210 kg/cm<sup>2</sup>

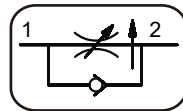
UH-613



### 2-Way Throttle Valve

2-way flow control  
 Max. flow rate: 40 l/min  
 Operating pressure: 0 - 210 kg / cm<sup>2</sup>

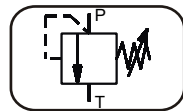
UH-615



### Pressure-Compensated Flow-Control Valve

Scale selector flow control  
 Max. flow rate: 25 l/min  
 Operating pressure: 5 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

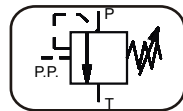
UH-701



### Pressure Relief Valve

Direct-operated, ball-screw adjusting  
 Pressure adjusting range: 25 - 70 kg/cm<sup>2</sup>  
 Operating pressure: 0 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

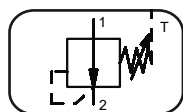
UH-703



### Pilot-Operated Pressure-Relief Valve

Piston balance type, anti-leak, ball-screw adjusting  
 Pressure adjusting range: 25 - 70 kg/cm<sup>2</sup>  
 Operating pressure: 0 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

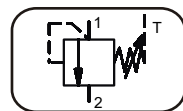
UH-711



### 3-Way Pressure Reducing Valve

Pressure adjusting range: 25 - 70 kg/cm<sup>2</sup>  
 Operating pressure: 0 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

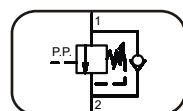
UH-723



### Sequence Valve

Internal pilot, ball-screw adjusting  
 Pressure adjusting range: 15 - 70 kg/cm<sup>2</sup>  
 Operating pressure: 0 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

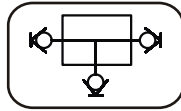
UH-733



### Counterbalance Valve

Pressure adjusting range: 20 - 70 kg/cm<sup>2</sup>  
 Max. flow rate : 60 l/min  
 Operating pressure: 5 - 210 kg/ cm<sup>2</sup>  
 Quick plug-in locking, safely clamping for mounting on working board  
 Precision quick connectors located on the top of component for easy access

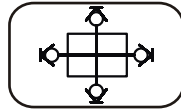
UH-805



### 3-Way Distributor

Inlet: quick coupling (female) x 1  
Outlet: quick coupling (male) x 2

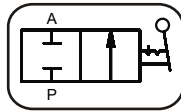
UH-807



### 4-Way Distributor

Inlet: quick coupling (female) x 1  
Outlet: quick coupling (male) x 3

UH-809



### Shut-off Valve

Actuation: Manual  
Max. flow rate: 50 l/min

UH-814

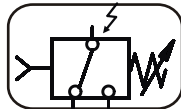
UH-815



### Hose Set

Hose inside diameter: 1/4"  
Operating pressure: 0 - 105 kg/cm<sup>2</sup>  
Attached quick connector (female)  
Length: UH-814 (1M), UH-815 (1.5M)

UH-821

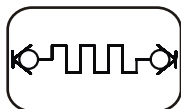
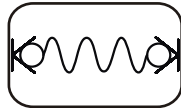


### Pressure Switch

Operating pressure: 15 - 100 kg/cm<sup>2</sup>  
Electrical connection via 4mm safety plugs or standard 4mm plugs  
Normally open (NO), normally closed (NC) and COM contacts  
Continuous load: 5 A

UH-824

UH-825



### Flow Resistance Measuring Hose

UH824: Diameter 4mm, Length 5M, Round type  
UH825: Diameter 4mm, Length 5M, Square type

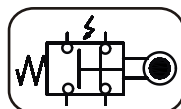
UE-501



### Connecting Lead

Lead diameter: 4 mm  
Length: 0.25M, 0.5M, 1M  
Color : Red, Yellow, Blue  
1set : 60 pcs

UE-907

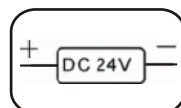


### Limit Switch

Roller lever type  
Contacts: NO, NC.

## ● Electrical Components

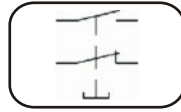
UE-101



### DC Power Supply

Input voltage: 100 - 240VAC/ 1.7 A  
Output voltage: 24 VDC/4.2 A  
Terminal: 2 sets for ± DC output  
with power I/O indicator  
2 terminal sets for power output

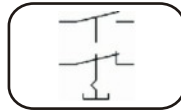
UE-201



**Pushbutton Switch**

Spring return  
 Pushbutton switch with illuminated indicator  
 Including NC, NO contacts  
 Operation voltage: 24 VDC  
 Max. current: 3 A

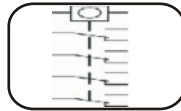
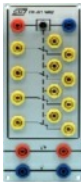
UE-203



**Selector Switch**

Selector switch with illuminated indicator  
 Including NC, NO contacts  
 Operation Voltage: 24 VDC  
 Max. current: 3 A

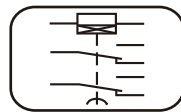
UE-401



**Relay**

4 sets of NC, NO, COM contacts  
 With LED indicator  
 Operation voltage: 24 VDC  
 Max. current: 5 A

UE-404

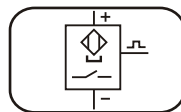


**Timing Relay**

ON-Delay type  
 Operation voltage: 24 VDC  
 Max. current: 5 A  
 Time Delay: 0.05sec - 300hour multi switch  
 2 sets of NC, NO, COM contacts  
 with LED indicator

● **Optional Components**

UE-911



**Reed Switch (Optional)**

Operating voltage: 24 VDC  
 Max. Current: 200 mA  
 Frequency range: 3 - 250 Hz

UH-003

**Hose Holder (Optional)**

Mobile type, with 5-foot tubular, with 5 casters, steel base, chipboard suitable with 30 slots.  
 With oil-catcher

EM-3390-1A



**Connecting Lead Holder (Optional)**

Mobile type, with 5-foot tubular, steel base, with 5 casters  
 Height : 1400mm, chipboard suitable  
 with 20 connecting leads slots

<b>Basic Hydraulic Components</b>													
<b>Equipment</b>		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	Q'ty
UH-001	Hydraulic Workbench	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1
UH-111	Pressure Gauge	1	1	2	3	3	1	1	2	1	2	2	3
UH-121	Inline Flow Meter	1	2	2	1	1	2	1	2	2			2
UH-201	Double-Acting Hydraulic Cylinder										1		1
UH-205	Double-Acting Hydraulic Cylinder									1			1
UH-205-1	Loading Weight									1			1
UH-211	Hydraulic Motor											1	1
UH-503	3/2-Way Directional Control Valve								1	1			1
UH-505	4/2-Way Directional Control Valve							1	1		1	1	1
UH-511	4/3-Way Directional Control Valve								1		1		1
UH-601	Check Valve						1						1
UH-603	Pilot-Operated Check Valve							1					1
UH-613	2-Way Throttle Valve					1							1
UH-615	Pressure-Compensated Flow-Control Valve				1	1							1
UH-701	Pressure Relief Valve	1	1	1	1	2							2
UH-703	Pilot-Operated Pressure-Relief Valve		1										1
UH-711	3-Way Pressure Reducing Valve			1				1					1
UH-733	Counterbalance Valve											1	1
UH-805	3-Way Distributor		1	1	1	1	1	1					1
UH-809	Shut-Off Valve		1	1	1		1	1	1	1	1	1	1
UH-814	Hose, 1M	5	9	10	10	9	6	9	8	7	5	8	10
UH-815	Hose, 1.5M	2	2	3	2	2	2	2	2	2	2	2	3
UH-824	Flow Resistance Measuring Hose, Round Type				1								1
UH-825	Flow Resistance Measuring Hose, Square Type				1								1

<b>Basic Hydraulic Control Circuits</b>																	
<b>Equipment</b>		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	Q'ty
UH-001	Hydraulic Workbench	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-111	Pressure Gauge	2	2	1	2	1	1	2	2	2	2	2	2			2	2
UH-116	Accumulator														1		1
UH-121	Inline Flow Meter	1															1
UH-201	Double-Acting Hydraulic Cylinder	1			1	2		2			1		1	2	1		2
UH-203	Differential Hydraulic Cylinder												1				1
UH-205	Double-Acting Hydraulic Cylinder		1	1	1		1		1		1						1
UH-211	Hydraulic Motor															1	1
UH-503	3/2-Way Directional Control Valve												1				1



<b>Basic Hydraulic Control Circuits</b>																	
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	Q'ty
UH-505	4/2-Way Directional Control Valve			1		1						1	1				1
UH-511	4/3-Way Directional Control Valve	1	1		1	1	1	1	1	1	1			1	1	1	1
UH-517	4/3-Way Directional Control Valve											1					1
UH-601	Check Valve		1		1			1								4	4
UH-603	Pilot-Operated Check Valve											1					1
UH-611	Flow Control Valve								1	1			1	2		2	2
UH-615	Pressure-Compensated Flow-Control Valve										1						1
UH-701	Pressure Relief Valve		1	1													1
UH-703	Pilot-Operated Pressure-Relief Valve															2	2
UH-711	3-Way Pressure Reducing Valve							1									1
UH-723	Sequence Valve				1	1											1
UH-733	Counterbalance Valve						1		1		1						1
UH-805	3-Way Distributor		3	1	3	1	1	3	1		1	2	1	2	1	3	3
UH-807	4-Way Distributor							1								3	3
UH-809	Shut-Off Valve					1						1			1		1
UH-814	Hose, 1M	5	10	6	10	10	7	10	8	5	10	7	6	10	6	10	10
UH-815	Hose, 1.5M	2	3	2	2	2	2	2	2	2	2	2	2	2	2	5	5

<b>Basic Electro-Hydraulic Control Circuits With Electro-Modules Frame</b>																			
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	EX.16	EX.17	Q'ty
UH-001	Hydraulic Workbench	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-111	Pressure Gauge	1	1			1	1	1	1	1		1	1			1	2	1	2
UH-116	Accumulator															1			1
UH-201	Double-Acting Hydraulic Cylinder	1	1	1	1	1		1	1	1		1	1			1		1	1
UH-203	Differential Hydraulic Cylinder	1	1		1	1		1						1					1
UH-205	Double-Acting Hydraulic Cylinder						1		1	1	1			1	1				1
UH-211	Hydraulic Motor																1		1
UH-401	2/2-Way Single-Solenoid Valve			1								1							1
UH-403	3/2-Way Single-Solenoid Valve												1		1				1
UH-405	4/2-Way Single-Solenoid Valve					1								1	1	1		1	1
UH-411	4/3-Way Double-Solenoid Valve	1	1	1			1		1	1	1	1					1	1	1
UH-419	4/3-Way Double-Solenoid Valve	1	1		1	1		1											1
UH-601	Check Valve				1	2		1					1				4		4
UH-603	Pilot-Operated Check Valve	1													1				1
UH-611	Flow Control Valve								2	2		1		2			2		2
UH-613	2-Way Throttle Valve										1		1						1
UH-701	Pressure Relief Valve	1	1	1		1													1

Basic Electro-Hydraulic Control Circuits With Electro-Modules Frame																			
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	EX.16	EX.17	Q'ty
UH-703	Pilot-Operated Pressure-Relief Valve																2		2
UH-711	3-Way Pressure Reducing Valve							1											1
UH-723	Sequence Valve				1	1													1
UH-733	Counterbalance Valve						1		1										1
UH-805	3-Way Distributor	3	2	1	4	3	1	2	1		1	2	1	2	1	1	3	1	4
UH-807	4-Way Distributor																3	1	3
UH-809	Shut-Off Valve	1	1		1			1								1			1
UH-814	Hose, 1M	10	10	8	10	10	7	10	9	6	6	9	7	10	10	7	10	7	10
UH-815	Hose, 1.5M	3	3	2	3	5	2	2	2	2	2	2	2	2	2	2	5	2	5
UH-821	Pressure Switch																	1	1
UE-101	DC Power Supply Module	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-201	Pushbutton Switch Module	3	2	2	2	1	2	1	2	2	2	2	2	1	6	2	4	2	6
UE-203	Selector Switch Module			1			1		2	2	2							1	2
UE-401	Relay Module	2	2	2	3	2	2	2	3	3	2	4	2	2	4	2	2	3	4
UE-404	Timing Relay Module					1		1		1		1	1	1					1
UE-501	Connecting Lead	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-907	Limit Switch	2	4	2	4	3		4	2	2		3	2	1		2		1	4

Electro-Hydraulic Sequence Control Circuits With Electro-Modules Frame																				
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	EX.16	EX.17	EX.18	Q'ty
UH-001	Hydraulic Workbench	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-201	Double-Acting Hydraulic Cylinder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-203	Differential Hydraulic Cylinder													1	1	1	1	1	1	1
UH-405	4/2-Way Single-Solenoid Valve	1	1	1	1	1	1							2	2	2				2
UH-411	4/3-Way Double-Solenoid Valve							1	1	1	1	1	1				2	2	2	2
UH-805	3-Way Distributor													1	1	1	1	1	1	1
UH-814	Hose, 1M	4	4	4	4	4	4	4	4	4	4	4	4	9	9	9	9	9	9	9
UE-101	DC Power Supply Module	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-201	Pushbutton Switch Module	1	2	1	2	1	2	2	1		1	1	2	1	1	1	2	2	2	2
UE-203	Selector Switch Module							1	1	1			1							1
UE-401	Relay Module	1	1	1	2	1	3	2	2	2	2	2	3	3	2	3	4	2	1	4
UE-404	Timing Relay Module					1	1				1	1	1			1			1	1
UE-501	Connecting Lead	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-907	Limit Switch			1	2	1	2		1	2	1	2	2	4	4	2	4	4	4	4

<b>Basic Electro-Hydraulic Control Circuits With PLC-200</b>																			
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	EX.16	EX.17	Q'ty
UH-001-01	Working Board	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-001-02	Working Table	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-111	Pressure Gauge	1	1			1	1	1	1	1		1	1			1	2	1	2
UH-116	Accumulator															1			1
UH-201	Double-Acting Hydraulic Cylinder	1	1	1	1	1		1	1	1		1	1			1		1	1
UH-203	Differential Hydraulic Cylinder	1	1		1	1		1						1					1
UH-205	Double-Acting Hydraulic Cylinder						1		1	1	1			1	1				1
UH-211	Hydraulic Motor																1		1
UH-401	2/2-Way Single-Solenoid Valve			1								1							1
UH-403	3/2-Way Single-Solenoid Valve												1		1				1
UH-405	4/2-Way Single-Solenoid Valve					1								1	1	1		1	1
UH-411	4/3-Way Double-Solenoid Valve	1	1	1			1		1	1	1	1					1	1	1
UH-419	4/3-Way Double-Solenoid Valve	1	1		1	1		1											1
UH-601	Check Valve				1	1		1					1				4		4
UH-603	Pilot-Operated Check Valve	1													1				1
UH-611	Flow Control Valve								2	2		1		2			2		2
UH-613	2-Way Throttle Valve										1		1						1
UH-701	Pressure Relief Valve	1	1	1		1													1
UH-703	Pilot-Operated Pressure-Relief Valve																2		2
UH-711	3-Way Pressure Reducing Valve							1											1
UH-723	Sequence Valve				1	1													1
UH-733	Counterbalance Valve						1		1										1
UH-805	3-Way Distributor	3	2	1	4	3	1	2	1		1	2	1	2	1	1	3	1	4
UH-807	4-Way Distributor																3	1	3
UH-809	Shut-Off Valve	1	1		1			1								1			1
UH-814	Hose, 1M	10	10	8	10	10	7	10	9	6	6	9	7	10	10	7	10	7	10
UH-815	Hose, 1.5M	3	3	2	3	5	2	2	2	2	2	2	2	2	2	2	5	2	5
UH-821	Pressure Switch																	1	1
UE-501	Connecting Lead	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-907	Limit Switch	2	4	2	4	3		4	2	2		3	2	1		2		1	4
PLC-200	PLC Trainer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

<b>Electro-Hydraulic Sequence Control Circuits With PLC-200</b>																					
Equipment		EX.1	EX.2	EX.3	EX.4	EX.5	EX.6	EX.7	EX.8	EX.9	EX.10	EX.11	EX.12	EX.13	EX.14	EX.15	EX.16	EX.17	EX.18	Q'ty	
UH-001-01	Working Board	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-001-02	Working Table	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-101	Hydraulic Power Unit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-201	Double-Acting Hydraulic Cylinder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UH-203	Differential Hydraulic Cylinder													1	1	1	1	1	1	1	1
UH-405	4/2-Way Single-Solenoid Valve	1	1	1	1	1	1							2	2	2					2
UH-411	4/3-Way Double-Solenoid Valve							1	1	1	1	1	1				2	2	2		2
UH-805	3-Way Distributor													1	1	1	1	1	1	1	1
UH-814	Hose, 1M	4	4	4	4	4	4	4	4	4	4	4	4	9	9	9	9	9	9	9	9
UE-501	Connecting Lead	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UE-907	Limit Switch			1	2	1	2		1	2	1	2	2	4	4	2	4	4	4	4	4
PLC-200	PLC Trainer	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

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