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Research Center

REPORT

CONVERSION OF

IHSAAN & TAHSEEN Co.

HOT CHAMBER

FINAL REPORT

Contract No. 98/055/IR

UNIDO's PROJECT No. MP/JOR/97/191

Jan 99

INDUSTRIAL CONTROL RESEARCH CENTER

Factory: No. 4 Iraqy Ave. Rajaii Ave. Tehran Iran P.Bo. 18915-133 Telefax 0098-21-5052836

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SYNOPSIS

Under supreme supervision of **UNIDO** the **CFC** phase project has been implemented in **Jordan** to phase out 100 % ODS in some Jordanian White Industries.

The project No. **MP/JOR/97/191** has been nominated to Jordan for the Multilateral Fund for the implementation of The Montreal Protocol Financing.

Ihsaan & Tahseen Co. As a Industrial Refrig. manufacturer in Jordan the main activities of ***Ihsaan & Tahseen Co.***, is producing refrigerators and freezers,

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INTRODUCTION

According to **UNIDO** contract No. 98/055/IR with Industrial Control Research Center Co. **(ICRC)** the existing ***Ihsaan & Tahseen Co.*** hot chambers facilities shall be converted and modified to phase out CFC-12 and suitable for **R134a** refrigerant to perform functionality and performance test of converted refrigerators and complying with ISO standards 7173, 8187, and 5155.

2 The **CFC** phase out project in ***Ihsaan & Tahseen Co.*** will enable ***Ihsaan & Tahseen Co.*** to convert the existing production line facilities and existing hot chambers into Non CFC production line, using **R134a** refrigerant.

3 The converted Hot Chamber Installations will provide more than 20 data points in the refrigeration circuit this means more information and the ability of analyzing refrigeration system and new refrigerant effect.

6 The reconstructed Hot Chamber will be able to check and test two refrigerator and /or ref. -freezers units at the same time. The same equipment and data processing system, as will be used at Amman plant test room will be installed in this chamber.

7 The immediate effect of this project at ***Ihsaan & Tahseen Co.*** is to perform all required check and tests, suitable for Refrigerator & Freezers using Ozone Friendly Gases. The existing test facilities in ***Ihsaan & Tahseen Co.*** are not adequate for check and testing, converted ref. and freezer units, in addition to that the hot rooms are not able to perform Energy Consumption and Optimization Program.

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ICRC Hot Chamber Characteristics

In order to convert ***Ihsaan & Tahseen Co***. hot rooms facilities , ***ICRC*** shall provide following services:

- Supply of new equipment.
- Redesign of old equipment
- Delivery of technical drawings and software.
- Installation and commissioning.
- Start-up of the equipment and the technology.
- On-the-job training of the plant personnel.

With respect to **ISO** standards test requirements, and for the purpose of functionality and performance tests of the new redesigned Refrigerator and Ref.-Freezers using R134a refrigerants. The existing hot room in ***Ihsaan & Tahseen Co.*** is being converted and equipped in such a way to enable ***Ihsaan & Tahseen Co.*** to check and test at least one different models of refrigerators and freezers at ambient temperature 32 to 43 degree centigrade at one hot room chambers . In addition to these services is providing. But the hot room is capable to test eight refrigerators and freezers in case of adding more transducers and sensors in the main panel in the hot room:

a) Procurement of new test measurement and data processing equipment.
b) Redesign and rebuilding of presently used equipment and installation.
c) Installation, commissioning, trial operation, start-up and on-the-job training

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Ihsaan & Tahseen HOT CHAMBER TECHNICAL SPECIFICATION

As previously mentioned , ***Ihsaan & Tahseen Co.***'s plant is producing 8700 refrigerator in 1996 . And subsequently the hot chamber should have been able to cover plant daily test requirement as well as other activities. Therefore, the converted hot chamber should respond to all test requirement and be able to meet ISO standards numbers 7371, 5155, 8187 as set forth in the contract and IJISI . The Amman plant hot chamber technical specification are as follows:

- Hot Chamber Dimension about 3.5 mt. by 4 mt.
- Refrigerator test ability simultaneously, 2 units
- Ability to perform following operational tests and report:

1 - Pull down test.
2 - Continuous run test.
3 - Cyclic run test.
4 - Ice Freeze test.
5 - Energy consumption test

- 20 Measuring points, including. (for one applia.)

  1 - Humidity, one point for one hot room.
  2 - Compressor Power, one point
  3 - Motor current, one point.
  4 - Supply Voltage, one point.
  5 - Hot chamber air temperature reading, one point.

- The ability to measure 160 points for eight models in case of improving the system by spending very low costs.

- Computerized graphical diagram of the refrigerator performance data sheet.

- Test measurement tolerance for temperature reading 0.3 degree centigrade.

- Computerized data processing system.

- Full color test sheet system reporting.

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- On screen and data reporting system ability with following characteristics;

1 - Test number.
2 - Product name.
3 - Product model
4 - Product internal volume
5 - Compressor name
6 - Compressor model
7 - Compressor cooling capacity
8 - Compressor current
9 - Thermostat setting
10 - Thermostat type.
11 - Total test running time.
12 - Ambient temperature.
13 - Voltage rating
14 - Working percentage
15 - Evaporator mean air temperature
16 - Cabin mean temperature
17 - Evaporator bulb temperature
18 - Crisper temperature.
19 - Actual compressor running time
20 - Energy consumption
21 - Compressor motor winding temperature
22 - Compressor shell temperature.
23 - Compressor discharge temperature.
24 - Condenser inlet temperature.
25 - Condenser out let temperature.
26 - Condenser mid temperature
27 - Evaporator inlet temperature
28 - Evaporator outlet temperature.
29 - Freezing temperature.
30 - Refrigeration system condition display.

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ACTIVITIES

The following activities were accomplished so far toward achievement of the contract requirement as set forth by **UNIDO** and the counterpart.

1 - Planning for;

a) Hot chambers DataLogger system management.
b) Hot chambers graphic display management.
c) Hot chambers calibration setting parameters.
d) Hot chambers test standards management

2 - Preparing material requirement list.

3 - Component and material supply source evaluation.

4 - Technical data collecting.

5 - Engineering drawing for electronic and electrical system

6 - Hot chamber design review.

7 - Data processing software planning.

8 - Data processing hardware planning.

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9 - Thermal amplification electronic cart design

10 - Preparation of timer 1 flow chart..

11 - Initial test of data loggers electronic cart.

12 - Initial connection of data loggers to the computers.

13 - Interface electronic cart design for PC and operating system.

14 - RTX3 electronic diagram design.

15 - RTX electronic diagram design.

16 - UNIDO, CRC - 386 design.

17 - UNIDO, TC- 100 design.

18 - UNIDO, in-out CRC design.

19 - Preparation of operating system display flow chart.

20 - **Visits** and coordination;

- Visiting plant four days , one engineer, one time to Jordan . (visit form 11 to 14 Aug.)
- Visiting and coordinating with UNDP officer in Jordan .
- Technical negotiation with ***Ihsaan & Tahseen Co.*** engineers in Amman headquarters in order to coordinate activities.
- Visiting hot chamber several times and ordering condition system and electrical cabinet and cooling system in Jordan.

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20 - Second Visits & installation and Start Up

- Visiting plant 10 days , one engineer, Second time to Jordan . (visit form 15 to 25 Dec.)
- Visiting and coordinating with UNDP officer in Jordan .
- Technical negotiation with ***Ihsaan & Tahseen Co.*** engineers in Amman headquarters in order to coordinate activities.
- Installing Condition controller on hot chamber
- Installing DataLogger0 on the wall of the Hot Chamber
- Installing Heating System
- Installing Humidifier
- installing Main Electronic Panel
- Installing Electrical Panel
- Installing Computer System With the Version 5 HotRoom Program
- Starting Energy Consumption Test for 14 Hour
- Testing 3 Frizzier and 1 Water Cooler And 2 Refrigerator
- Estimating the operation of samples
- Estimating the Energy for each sample
- Controlling the Temperature
- Reading 32 point Temperature
- Reading 2 point Voltage
- Reading 2 Point Watt
- Reading 2 Point Energy KWh/Day
- Curving all parameters In color Mode

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SUPPLY PARTS AND MATERIALS

In order to fabricate components and electronic kits All necessary material and parts have been purchased as mentioned in Offer.

Factory: No. 4 Iraqy Ave. Rajaii Ave. Tehran Iran P.Bo. 18915-133 Telefax 0098-21-5052836

512 | THR | 27940183 512-27940183

Shipper's Name and Address: JONOVB RESEARCH IND CONTROL CO
C/O SEPEHRAN RAH ASIA CO
TEL: 21 4664463 TEHRAN IRAN

Shipper's Account Number:

Not negotiable
Air Waybill
(Air Consignment note)
Issued by ROYAL JORDANIAN
P.O. BOX 302 AMMAN—JORDAN

ROYAL JORDANIAN
Member of International Air Transport Association

Copies 1, 2 and 3 of this Air Waybill are originals and have the same validity

Consignee's Name and Address: IHSAAN & TAHSEEN
BAALBAKI CO.
TEL:4624745-4648710 FAX: 4648711
AMMAN-JORDAN

Consignee's Account Number:

It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIERS' LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying a supplemental charge if required.

Issuing Carrier's Agent Name and City:

Accounting Information: ALL CHARGES PREPAID

ROE 1 USD =5700 IRR

Agent's IATA Code:

Account No.:

Airport of Departure (Addr. of First Carrier) and Requested Routing: TEHRAN/AMM

To	By First Carrier (Routing and Destination)	to	by	to	by	Currency	CHGS Code	WT/VAL PPD	WT/VAL COLL	Other PPD	Other COLL	Declared Value for Carriage	Declared Value for Customs
AMM	ROYALJORDANIAN					IRR	PP	XX		XX		NVD	NCV

Airport of Destination: AMMAN-JORDAN

Flight/Date (For Carrier Use Only) Flight/Date

Amount of Insurance:

INSURANCE — If carrier offers insurance, and such insurance is requested in accordance with the conditions thereof, indicate amount to be insured in figures in box marked "Amount of Insurance".

Handling Information: 01 PIECE OF ELECTRONIC EQP

These commodities licensed by USA for ultimate destination..... Diversion contrary to USA law prohibited

No. of Pieces RCP	Gross Weight	kg/lb	Rate Class / Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (incl. Dimensions or Volume)
01	78	K Q		78	6060	472680	ELECTRONIC EQP
01	78					472680	

Prepaid: 472680 IRR
Weight Charge:
Collect:

Valuation Charge:

Tax:

Other Charges: AWC= 30000 IRR

Total Other Charges Due Agent:

Total Other Charges Due Carrier: 30000 IRR

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations.

Signature of Shipper or his Agent

Total Prepaid: 502680 IRR

Total Collect:

Currency Conversion Rates: 88.00 USD

CC Charges in Dest. Currency:

23.NOV.98 TEHRAN IRAN ROYAL JORDANIAN
Executed on (date) at (place) Signature of Issuing Carrier or its Agent

For Carriers Use only at Destination:

Charges at Destination:

Total Collect Charges:

512-27940183

Printed in United Kingdom by Aero Print Ltd

Original 3 (for Shipper)

```
Dim Black, Blue, Green
Dim Cyan, red, Magenta, YELLOW
Dim gray, L_Blue, L_Green
Dim L_cyan, L_red, L_Magenta, L_yellow

Dim prn_color As Integer 'False=Black & White ; True=Color

Dim printcolor As Integer
Dim Y, Repstr$, Rot_Txt_no%
Dim printerdrawwidth As Integer
Dim offset, PageNo
Dim Lb_Tmp As Label
Dim FirstKey

Dim Rec_Max%
      Dim SegEn
      Dim ActiveFrame      As Integer
      Dim ActiveLabel      As Integer
      Dim Seg_n            As Integer

      Dim PrnPageNo        As Integer
      Dim ActivePage       As Integer


      Dim sl%, st%, sw%, sh%, dw%
      Dim a30 As String * 30

      Dim rr() 'Extracted Results


      '
    Sub cmd_click (Index As Integer)

        Select Case Index
            Case 0                          'print
                screen.MousePointer = 11
                Cmd(0).Enabled = False
                Cmd(1).Enabled = False
                DoEvents
                Call Print_All
                Call Save_Spec
                screen.MousePointer = 0
                Cmd(0).Enabled = True
                Cmd(1).Enabled = True
                'Unload Me
```

```
        Case 1                              'Save
            nn = Variable("Prnt", "Write")
            nn = Variable("Prnt", "Read")
        Case 2                              'cancel
            Unload Me
        Case 3
            Me.Hide
            Paper.Show
    End Select
    Exit Sub
End Sub

'-------------------------------------------------------------------------------
'
Sub Color_chk_Click (Value As Integer)

    If color_chk.Value = False Then
        prn_color = False
        color = 0
        Black = color
        Blue = color
        Green = color
        Cyan = color
        red = color
        Magenta = color
        YELLOW = color
        gray = color
        L_Blue = color
        L_Green = color
        L_cyan = color
        L_red = color
        L_Magenta = color
        L_yellow = color

    Else
        prn_color = True
        Black = QBColor(0)
        Blue = QBColor(1)
        Green = QBColor(2)
        Cyan = QBColor(3)
        red = QBColor(4)
        Magenta = QBColor(5)
        YELLOW = QBColor(6)
        gray = QBColor(8)
        L_Blue = QBColor(9)
        L_Green = QBColor(10)
        L_cyan = QBColor(11)
```

```
        L_red = QBColor(12)
        L_Magenta = QBColor(13)
        L_yellow = QBColor(14)
    End If

End Sub

'-------------------------------------------------------------------------
'
Sub crv (mode$, Rec1, Rec2)

  Select Case mode$
    Case "prn"
        printer.ForeColor = Black
        printer.FontName = "Arial"
        printer.FontSize = 10
        obj = activeobj

        'print x_axis
        printer.DrawWidth = 3 * printerdrawwidth
        printer.Line (Rec1, 0)-(Rec2, 0)'axis
        printer.DrawWidth = 1
        printer.DrawStyle = 2'=DOt 3=Dash-Dot 4=Dash_Dot_Dot
        For i = -300 To 1000 Step 100
            printer.Line (Rec1, i)-(Rec2, i)
        Next i
        Rec = zoom(Seg_n).X1
        printer.DrawWidth = 3 * printerdrawwidth
        printer.ForeColor = IIf(prn_color = False, Black, zoom(Seg_n).Bord
        printer.Line (Rec, -300)-(Rec, 1000)
        printer.DrawStyle = 0 'Solid
        printer.DrawWidth = 1 * printerdrawwidth

        printer.CurrentX = Rec - RecLb(Seg_n).Width / 2
        printer.CurrentY = 1030
        printer.Print RecLb(Seg_n).Caption

        n = -1
        R1 = (Rec1 \ 10 + 1) * 10
        R2 = (Rec2 \ 10) * 10

        printer.FontSize = 5
        printer.ForeColor = Black
        For Rec = R1 To R2 Step 10
            printer.Line (Rec, 10)-(Rec, -10), Black
            n = n + 1
            If n Mod 3 = 0 Then
                B$ = Right$("0" & Rec \ 60, 2) & ":" & Right$("0" & Rec Mo
```

```
                printer.CurrentX = Rec - 2'offset / 13
                printer.CurrentY = -12
                printer.Print B$
            End If
        Next Rec

        'graph
        For n = 0 To 1
            For d = 1 To 6
                If curve_Item(n, d) < 50 Then
                    z = curve_Item(n, d)
                    If curve_color(n, d) = 15 Then col = 0 Else col = curv
                    printer.ForeColor = IIf(prn_color = False, Black, QBCo
                    For Rec = Rec1 To Rec2 - 1
                        bool1 = grf(26, Rec) = 789
                        bool2 = grf(26, Rec + 1) = 789
                        If bool1 And bool2 Then
                            Y1 = grf(z, Rec)
                            Y2 = grf(z, Rec + 1)
                            printer.Line (Rec, Y1)-(Rec + 1, Y2)
                        End If
                    Next Rec
                End If
             Next d
        Next n
    Case "grfall"
        On Error Resume Next 'Note:Karim
        obj = activeobj
        grafall.Cls
        grafall.DrawMode = 7                          '(7=xor 13=copy)
        RecAll_End = UBound(grf, 2) - 1
        If Err = 9 Then
            Rec_Max = 0
            Exit Sub
        End If
        Rec_Max = RecAll_End
        screen.MousePointer = 11
        sw = IIf(RecAll_End < 100, 100, RecAll_End)
        grafall.ScaleWidth = sw'+ recall_end \ 10
        grafall.ScaleLeft = 0
        recall_start = 1
        grafall.Line (recall_start, 0)-(RecAll_End, 0), QBColor(3)


        For n = 0 To 1
        For d = 1 To 6
          If curve_Item(n, d) < 50 Then
            z = curve_Item(n, d)
```

```
            If hr.lbt(z).Visible = True Then
              grafall.ForeColor = QBColor(curve_color(n, d))
              For Rec = recall_start To RecAll_End - 1
                If grf(26, Rec) = 789 And grf(26, Rec + 1) = 789 Then
                  grafall.Line (Rec, grf(z, Rec))-(Rec + 1, grf(z, Rec + 1
                End If
              Next Rec
            Else
                curve_Item(n, d) = 50
                hr.lbt(z).ForeColor = QBColor(0)
                hr.lbt(z).BackColor = &H202020
            End If

            End If
          Next d
        Next n
        screen.MousePointer = 0
    Case "grfzoom"
        On Error Resume Next
        obj = activeobj

        zoomarea = 30
        zoomarea2 = zoomarea \ 2
        grafzoom.ScaleWidth = zoomarea
        'X = Int(zoom.X1 + .5)
        'If X > Rec_Max Then Stop
        grafzoom.ScaleLeft = X - zoomarea2

        Rec_Start = IIf(X - zoomarea2 > 0, X - zoomarea2, 0)
        Rec_end = IIf(X + zoomarea2 < Rec_Max, X + zoomarea2, Rec_Max)

        'Rec_Start = Seg(ActiveSeg).Left
        'Rec_End = Rec_Start + Seg(ActiveSeg).Width
        'grafzoom.ScaleWidth = Seg(ActiveSeg).Width
        'grafzoom.ScaleLeft = Rec_Start

        grafzoom.Cls
        grafzoom.DrawMode = 7                          '(7=xor 13=copy)
        grafzoom.Line (Rec_Start, 0)-(Rec_end, 0), QBColor(3)
        For n = 0 To 1
        For d = 1 To 6
          If curve_Item(n, d) < 50 Then
            z = curve_Item(n, d)
            If hr.lbt(z).Visible = True Then
              grafzoom.ForeColor = QBColor(curve_color(n, d))
              For Rec = Rec_Start To Rec_end - 1
                If grf(26, Rec) = 789 And grf(26, Rec + 1) = 789 Then
                  grafzoom.Line (Rec, grf(z, Rec))-(Rec + 1, grf(z, Rec +
```

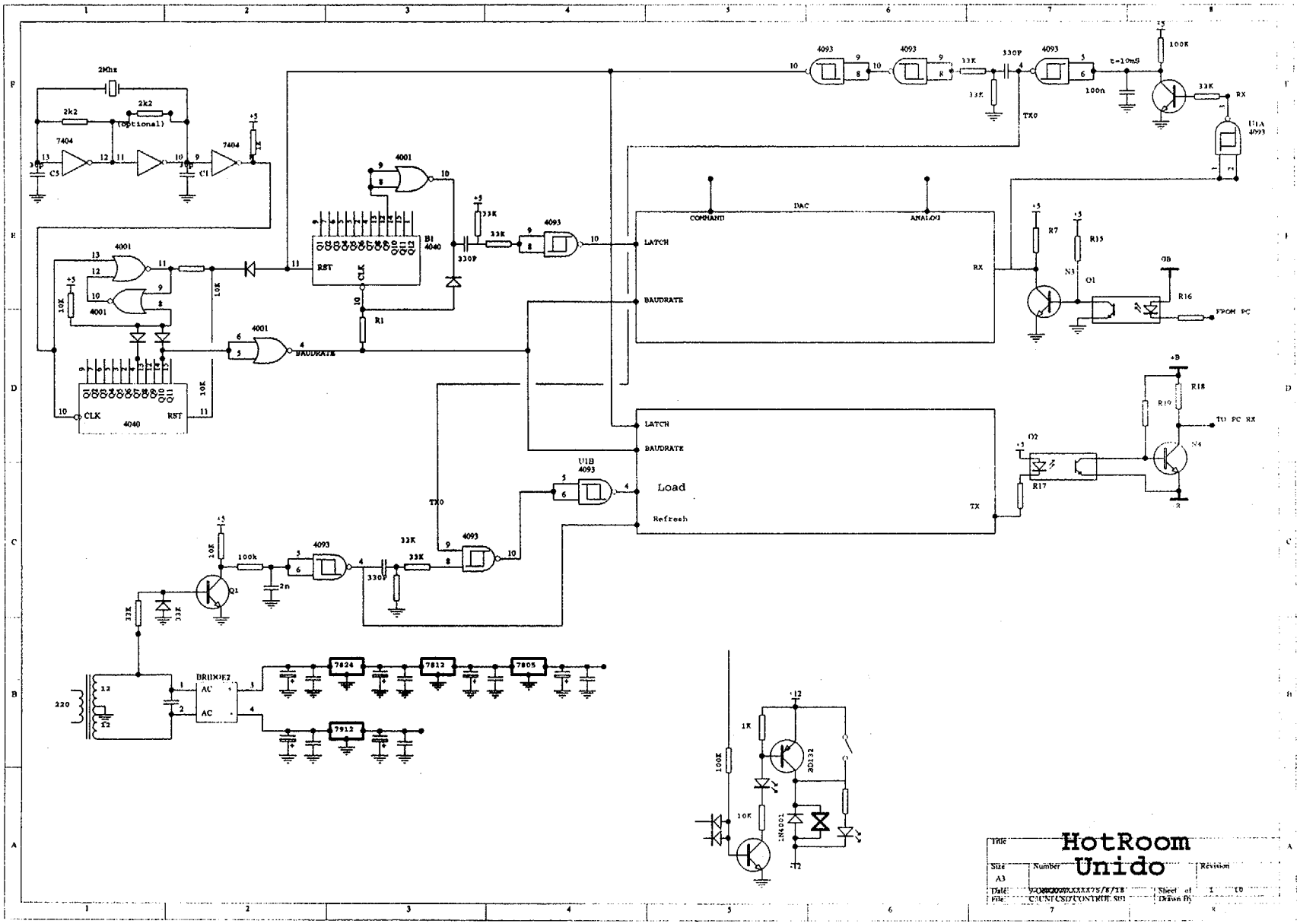
```
                End If
              Next Rec
            Else
                curve_Item(n, d) = 50
                hr.lbt(z).ForeColor = QBColor(0)
                hr.lbt(z).BackColor = &H202020
            End If

            End If
          Next d
        Next n
        screen.MousePointer = 0
        Call ResultsGrf_click
    End Select

End Sub

'
'
Sub CrvZoom ()

        On Error Resume Next
    obj = activeobj
    zoomarea = 30
    zoomarea2 = zoomarea \ 2
    grafzoom.ScaleWidth = Val(PrnLb(27)) * 60
    grafzoom.ScaleLeft = Seg(ActivePage).Left
    Rec_Start = grafzoom.ScaleLeft + 1
    Rec_end = Rec_Start + grafzoom.ScaleWidth - 1
    If Rec_end > UBound(grf, 2) Then Rec_end = UBound(grf, 2)
    grafzoom.Cls
    grafzoom.DrawMode = 7                          '(7=xor 13=copy)
    grafzoom.Line (Rec_Start, 0)-(Rec_end, 0), QBColor(3)
    For n = 0 To 1
        For d = 1 To 6
            If curve_Item(n, d) < 50 Then
                z = curve_Item(n, d)
                If hr.lbt(z).Visible = True Then
                    grafzoom.ForeColor = QBColor(curve_color(n, d))
                    If Rec_Start < 1 Then Rec_Start = 1
                    For Rec = Rec_Start To Rec_end - 1
                        bol1 = (grf(26, Rec) = 789)
                        bol2 = (grf(26, Rec + 1) = 789)
                        If bol1 And bol2 Then
                            Y2 = grf(z, Rec + 1)
                            Y1 = grf(z, Rec)
                            grafzoom.Line (Rec, Y1)-(Rec + 1, Y2)
                        End If
```

```
                    Next Rec
                Else
                    'curve_Item(n, d) = 50
                    'hr.lbt(z).ForeColor = QBColor(0)
                    'hr.lbt(z).BackColor = &H202020
                End If
            End If
        Next d
    Next n
    z = Int(zoom(ActivePage).X1)
    zoomzoom.X1 = z
    zoomzoom.X2 = z
    zoomzoom.BorderColor = zoom(ActivePage).BorderColor
    Grfzoom_pnl.BackColor = zoomzoom.BorderColor
    a$ = Right$(("0" & z \ 60), 2) & ":" & Right$(("0" & z Mod 60), 2)
    RecLb(ActivePage).Caption = a$
    Call ResultsGrf_click

End Sub

'
'
Sub Extract_Results ()

    ReDim rr(0 To 4, 0 To 4)
          'rr(main,p1,p2,p3,p4;;TTT,work_on,work_off,Jule)
    Const main = 0, TTT = 0 'TTT=Total Test Time
    Const workon = 1, workoff = 2, Jule = 3
    Const CMT = 4    'CMT=Cabin Mid. Temprature
    x0 = 1
    n_cmt_main = 0
    For Page = 1 To PrnPageNo
        n_cmt_Seg = 0
        Rec1 = Int(Seg(Page).Left + .5)
        Rec2 = Rec1 + Int(Seg(Page).Width + .5)
        For Rec = x0 To Rec1
            If grf(26, Rec) = 789 Then
                If grf(18, Rec) < 30 Then
                    rr(main, workoff) = rr(main, workoff) + 1
                Else
                    rr(main, workon) = rr(main, workon) + 1
                End If
                rr(main, Jule) = rr(main, Jule) + grf(20, Rec)
                rr(main, CMT) = rr(main, CMT) + grf(4, Rec) + grf(5, Rec)
                n_cmt_main = n_cmt_main + 3'4
            End If
        Next Rec
        x0 = Rec1 + 1
```

```
        For Rec = Rec1 + 1 To Rec2
            If grf(26, Rec) = 789 Then
                If grf(18, Rec) < 30 Then
                    rr(i, workoff) = rr(i, workoff) + 1
                    rr(main, workoff) = rr(main, workoff) + 1
                Else
                    rr(i, workon) = rr(i, workon) + 1
                    rr(main, workon) = rr(main, workon) + 1
                End If
                rr(i, Jule) = rr(i, Jule) + grf(20, Rec)
                rr(main, Jule) = rr(main, Jule) + grf(20, Rec)

                rr(i, CMT) = rr(i, CMT) + grf(4, Rec) + grf(5, Rec) + grf(
                n_cmt_Seg = n_cmt_Seg + 3
                rr(main, CMT) = rr(main, CMT) + grf(4, Rec) + grf(5, Rec)
                n_cmt_main = n_cmt_main + 3

            End If
        Next Rec
        rr(i, TTT) = Rec2 - Rec1
        rr(i, CMT) = Int(rr(i, CMT) / n_cmt_Seg + .5)
        x0 = Rec2 + 1
    Next Page
    Rec1 = RecEnd0
    For Rec = x0 To Rec1
        If grf(26, Rec) = 789 Then
            If grf(18, Rec) < 30 Then
                rr(main, workoff) = rr(main, workoff) + 1
            Else
                rr(main, workon) = rr(main, workon) + 1
            End If
            rr(main, Jule) = rr(main, Jule) + grf(20, Rec)
            rr(main, CMT) = rr(main, CMT) + grf(4, Rec) + grf(5, Rec) + gr
            n_cmt_main = n_cmt_main + 3
        End If
    Next Rec
    rr(main, TTT) = RecEnd0
    rr(main, CMT) = Int(rr(main, CMT) / n_cmt_main + .5)

End Sub

Sub Form_Activate ()
'Call Prnlb_Mousedown(0, 0, 0, 0, 0)
End Sub

'-----------------------------------------------------------------------
'
Sub Form_Load ()
```

```
    If Dir("c:\hr1.exe") <> "" Then Exit Sub
    nn = Variable("Prnt", "Read")
    'PrnLb(2).Caption = Operator0
    'PrnLb(3).Caption = Chief0

    PrnPageNo = 0
    Cmd(0).Enabled = True
    Cmd(1).Enabled = True
    Call Color_chk_Click(True)
    'Set Lb_Tmp = TestName0

    grafzoom.ScaleHeight = -1450
    grafzoom.ScaleTop = 1100
    grafall.ScaleHeight = -1450
    grafall.ScaleTop = 1100

    Call crv("grfall", 0, 0)
    ActivePage = 1
    SegEn = -1

End Sub

'-------------------------------------------------------------------------
'
Sub Form_QueryUnload (Cancel As Integer, UnloadMode As Integer)

    hr.Visible = True

End Sub

'-------------------------------------------------------------------------
'
Sub Grafall_KeyDown (keycode As Integer, Shift As Integer)

    X = Int(X)
    ShiftDown = (Shift And 1) <> 0
    ww = PageWidth * 60
    Select Case keycode
        Case 49, 50, 51, 52, 53, 54
             Page = keycode - 48
             If Page > PrnPageNo Then Exit Sub
             ActivePage = Page
             Call PrnPageGrf_click
             DoEvents
             Exit Sub
        Case Key_Up
            Call PrnPageSpin_SpinUp
```

```
            Exit Sub
        Case Key_Down
            Call PrnPageSpin_SpinDown
            Exit Sub
        Case KEY_LEFT
            n = -5
        Case KEY_RIGHT
            n = 5
        Case KEY_NUMPAD4
            n = -30
        Case KEY_NUMPAD6
            n = 30
    End Select
    If ActivePage = 1 And n < 0 Then
        If Seg(1).Left + n < 0 Then n = -Seg(1).Left
    ElseIf ActivePage = PrnPageNo And n > 0 Then
        X1 = Seg(ActivePage).Left + Seg(ActivePage).Width + n
        If X1 > RecEnd0 Then
            n = RecEnd0 - (Seg(ActivePage).Left + Seg(ActivePage).Width)
        End If
    ElseIf n > 0 Then
        If Seg(ActivePage).Left + ww + n >= Seg(ActivePage + 1).Left Then
            n1 = Seg(ActivePage + 1).Left
            n2 = (Seg(ActivePage).Left + ww)
            n = n1 - n2 - 3
        End If
    ElseIf n < 0 Then
        If Seg(ActivePage - 1).Left + ww > Seg(ActivePage).Left + n Then
            n = Seg(ActivePage - 1).Left + ww - Seg(ActivePage).Left + 1
        End If
    End If
    'DoEvents
    Seg(ActivePage).Left = Seg(ActivePage).Left + n
    zoom(ActivePage).X1 = zoom(ActivePage).X1 + n
    zoom(ActivePage).X2 = zoom(ActivePage).X2 + n
    'DoEvents
    RecLb(ActivePage).Left = RecLb(ActivePage).Left + n
    RecLb(ActivePage).Caption = Val(RecLb(ActivePage).Caption) + n
    Call CrvZoom

    DoEvents
End Sub
```



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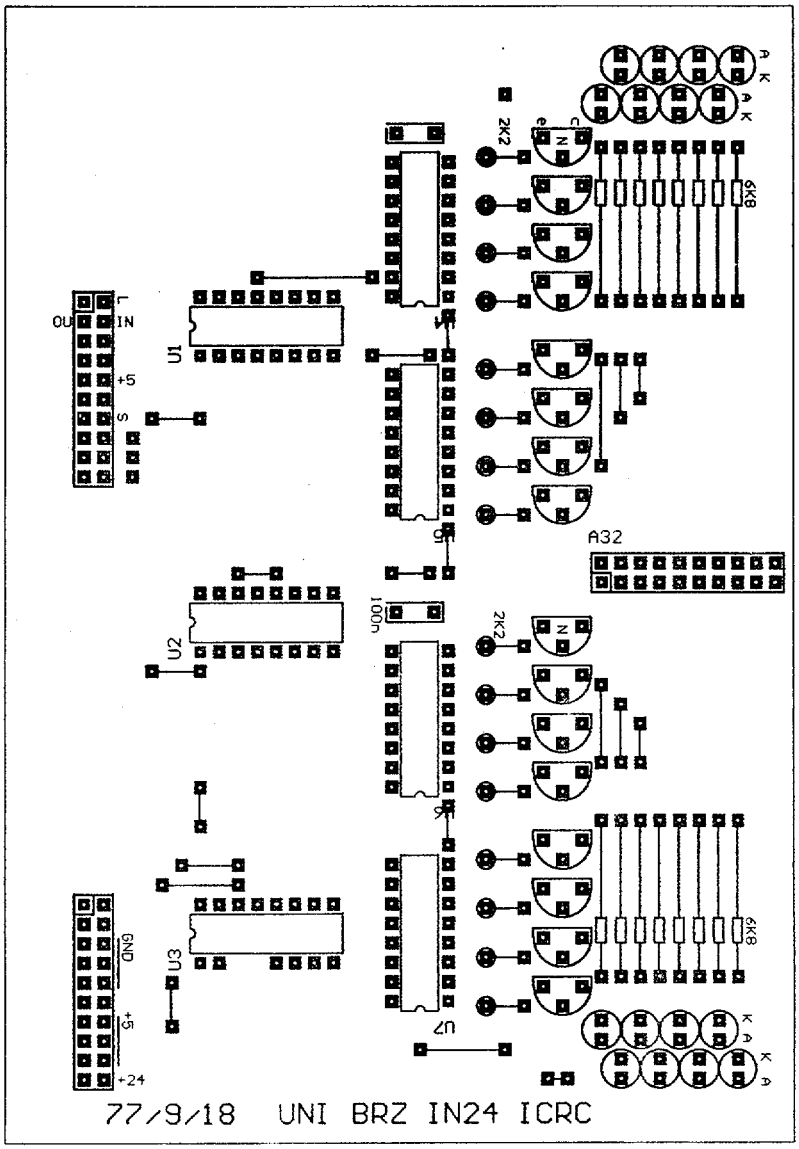
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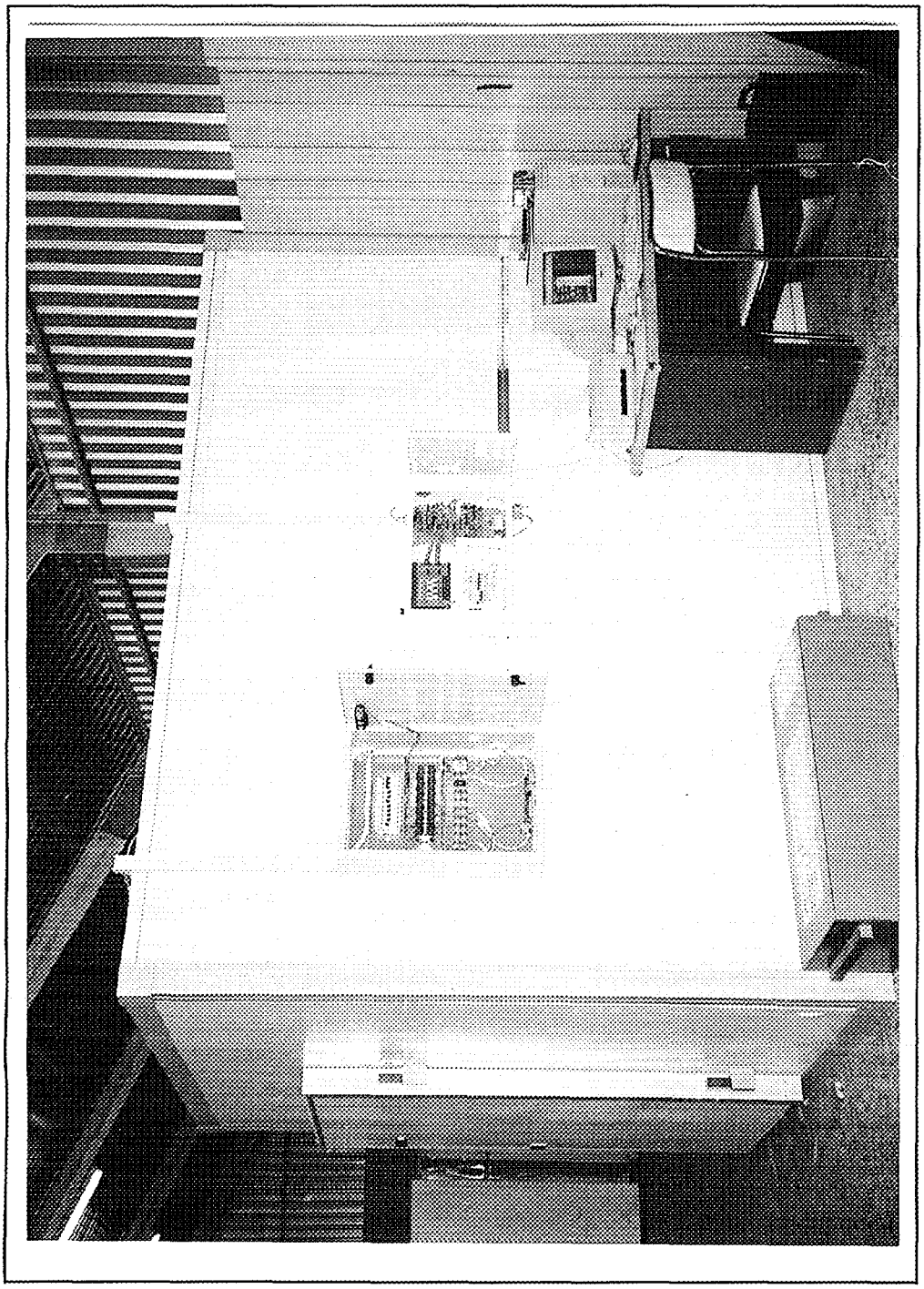
Project No. MP/JOR/97/191
Contract No. 98/055/IR
IHSAAN & TAHSEEN BAALBAKI Hot Room
Installed in Amman

Industrial Control
Research Center



HotChamber and Parts

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IHSAAN & TAHSEEN BAALBAKI Hot Room
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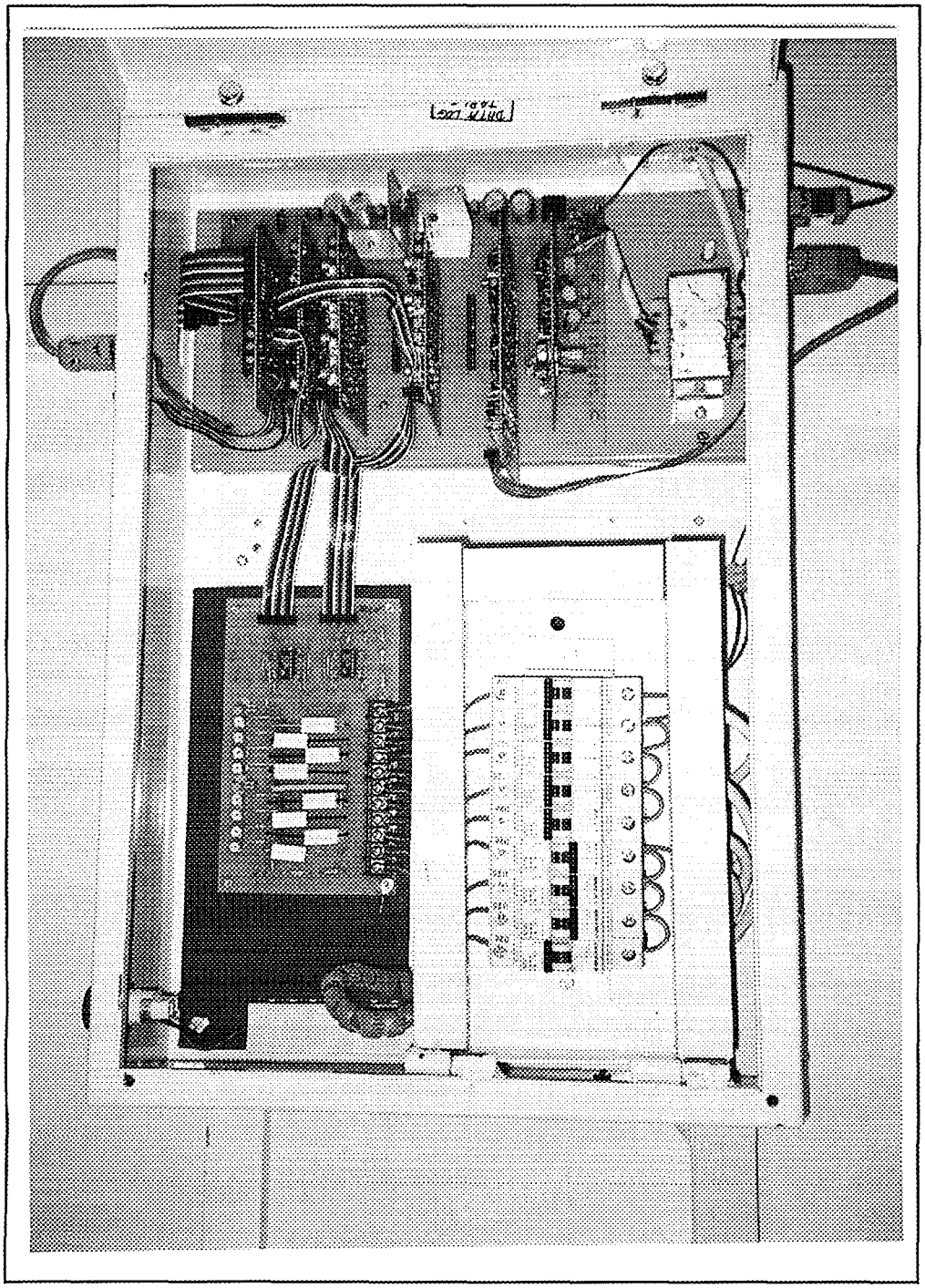

Electronic Data Logger and Controller Panel

Project No. MP/JOR/97/191
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Installed in Amman

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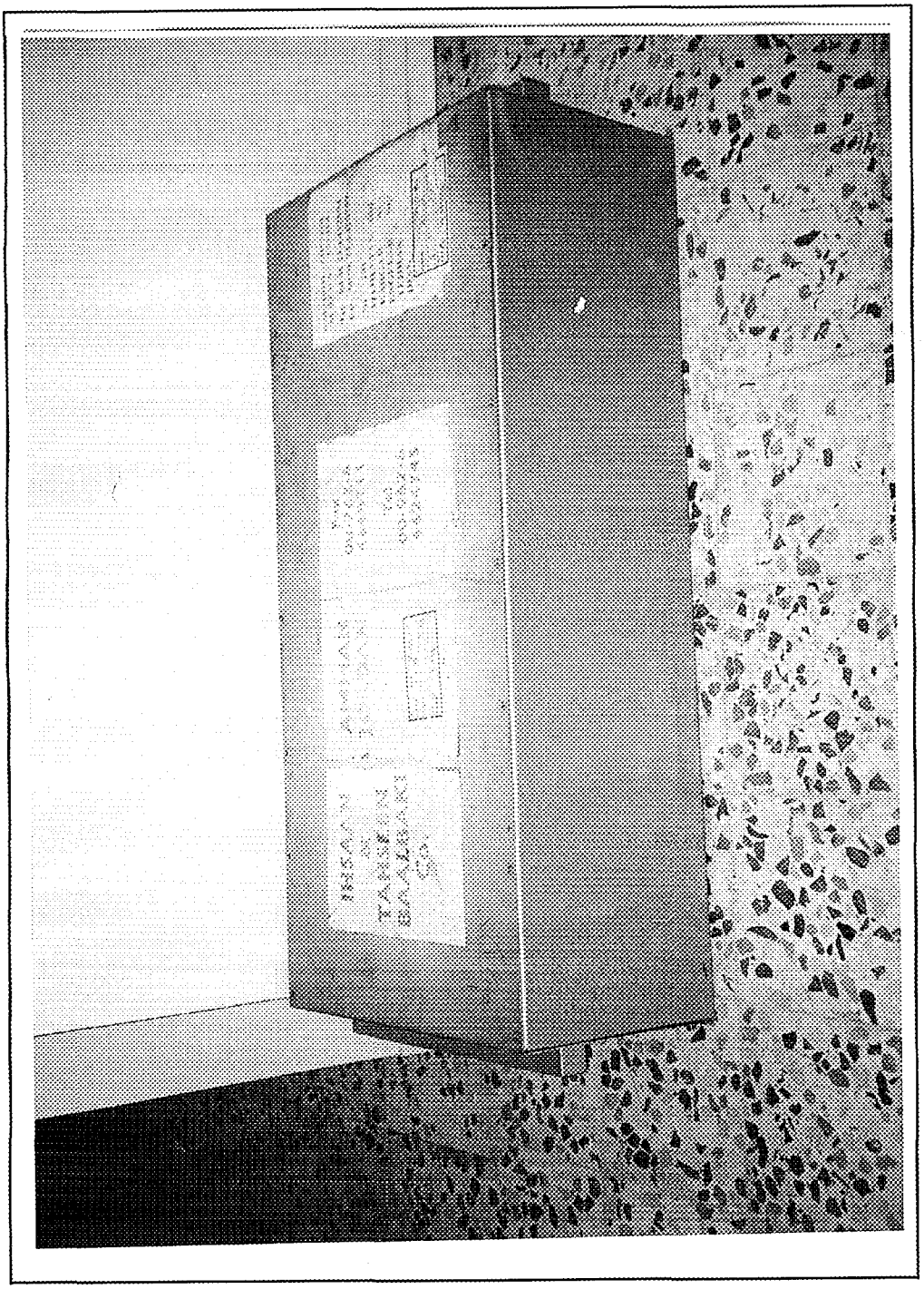

Transported Package