MOBILE OIL TREATER (M.O.T.)

INSTRUMENT HOOK-UP

ELECTRICAL CONNECTION DETAIL

1	25.SEP.2013	AFC	F.L.	K.Z.	K.Z.
0	10.MAY.2013	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.
REV.	**Date**	**Status**	**PRPD**	**CHKD**	**APPD**

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TABULATION OF REVISED PAGES

PAGE	REV.0	REV.1	REV.2	REV.3
1	X	X		
2	X	X		
3	X	X		
4	X	X		
5	X	X		
6	X	X		
7	X	X		
8	X	X		
9	X	X		
10	X	X		
11	X	X		
12	X	X		
13	X	X		
14	X	X		
15	X	X		
16	X	X		
17	X	X		
18	X	X		

PAGE	REV. 0	REV.1	REV.2	REV.3

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CONTENT :

	PAGE :
- REVISION INDEX	2
- CONTENT	3
- BULK SUMMARY	4,5
- CABLE TERMINATION	6
- J/B WIRING FOR 4-20 mA & DISCRETE SIGNALS	7
- J/B WIRING FOR SOLENOID VALVES	8
- WIRE "CONNECTION DIAGRAM"	9
- CABLE MARKING	10
- TYPICAL INSTRUMENT OR JUNCTION BOX CONNECTION	11,12
- CONDUIT SELECTION	13
- CABLE TRAY & CABLE PROTECTION RING	14,15
- RISER	16
- TEE	17
- ELBOW	18

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
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MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK-UP
(ELECTRICAL CONNECTION DETAIL)

PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	3/18	1

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BULK SUMMARY

ITEM	SIZE	DESCRIPTION	INDENT No.	QUAN. REQ.	MATERIAL	REMARKS
100	$2.5mm^2$	WIRING PIN, CRIMP TYPE		NOTE 1	BRASS	
101	$1.5mm^2$	WIRING PIN, CRIMP TYPE		NOTE 1	BRASS	
120	–	WIRE CORE FERRULES, No.1 TO 9		NOTE 1	PLASTIC	
160	10mmx15mm	CABLE MARKER		NOTE 1	S.S.	
161	10mmx25mm	CABLE MARKER		NOTE 1	S.S.	
166	10mmx35mm	CABLE MARKER		NOTE 1	S.S.	
183	3/4"	BUSHING		NOTE 1	PLASTIC	
184	1"	BUSHING		NOTE 1	PLASTIC	
236	1 1/4"	BUSHING		NOTE 1	PLASTIC	
237	1 1/2"	BUSHING		NOTE 1	PLASTIC	
238	2"	BUSHING		NOTE 1	PLASTIC	
327	2"	U–BOLT WITH NUTS		NOTE 1	GALVANIZED STEEL	
329	3/4"	U–BOLT WITH NUTS		NOTE 1	GALVANIZED STEEL	
331	1"	U–BOLT WITH NUTS		NOTE 1	GALVANIZED STEEL	
337	1 1/4"	U–BOLT WITH NUTS		NOTE 1	GALVANIZED STEEL	
338	1 1/2"	U–BOLT WITH NUTS		NOTE 1	GALVANIZED STEEL	
579	3/4"	CONDUIT		NOTE 1	GALVANIZED STEEL	
580	1"	CONDUIT		NOTE 1	GALVANIZED STEEL	
581	1 1/4"	CONDUIT		NOTE 1	GALVANIZED STEEL	
582	1 1/2"	CONDUIT		NOTE 1	GALVANIZED STEEL	
583	2"	CONDUIT		NOTE 1	GALVANIZED STEEL	
681	6–12mm DIA.	CABLE FASTENING		NOTE 1	GALVANIZED STEEL	
687	16–22mm DIA.	CABLE FASTENING		NOTE 1	GALVANIZED STEEL	

NOTE 1: REQUIRED QUANTITIES OF MATERIAL WILL BE SPECIFIED BY CONTRACTOR LATER.

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BULK SUMMARY

ITEM	SIZE	DESCRIPTION	INDENT No.	QUAN. REQ.	MATERIAL	REMARKS
693	28–34mm DIA.	CABLE FASTENING		NOTE 1	GALVANIZED STEEL	
749	M20	CABLE GLAND WITH SHROUD		NOTE 2	BRASS	
756	M25	CABLE GLAND WITH SHROUD		NOTE 2	BRASS	
780	M40	CABLE GLAND WITH SHROUD		NOTE 2	BRASS	
770	M32	CABLE GLAND WITH SHROUD		NOTE 2	BRASS	
778	M20	BUSHING WITH LOCK NUT		NOTE 1	GALVANIZED STEEL	
779	M25	BUSHING WITH LOCK NUT		NOTE 1	GALVANIZED STEEL	
788	M32	BUSHING WITH LOCK NUT		NOTE 1	GALVANIZED STEEL	
800	600mmWIDTH	CABLE TRAY		NOTE 3	GALVANIZED STEEL	
801	200mmWIDTH	CABLE TRAY		NOTE 3	GALVANIZED STEEL	
802	100mmWIDTH	CABLE TRAY		NOTE 3	GALVANIZED STEEL	

NOTE 1: REQUIRED QUANTITIES OF MATERIAL WILL BE SPECIFIED BY CONTRACTOR LATER.
NOTE 2: CABLE GLAND WITH SHROUD WILL BE PROVIDED AS PER MATERIAL REQUISITION FOR INST. CABLE GLAND.
NOTE 3: CABLE TRAY WILL BE PROVIDED AS PER MATERIAL REQUISITION FOR CABLE TRAY.

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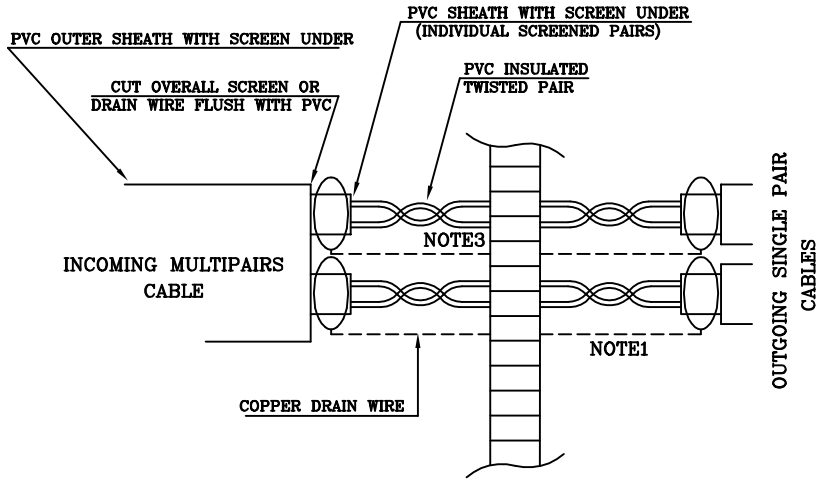
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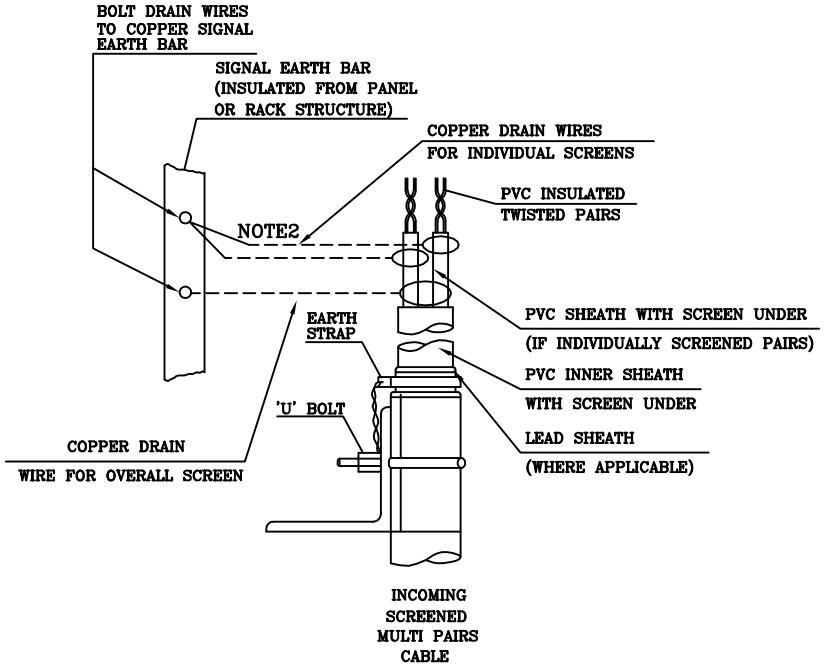
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CABLE TERMINATION

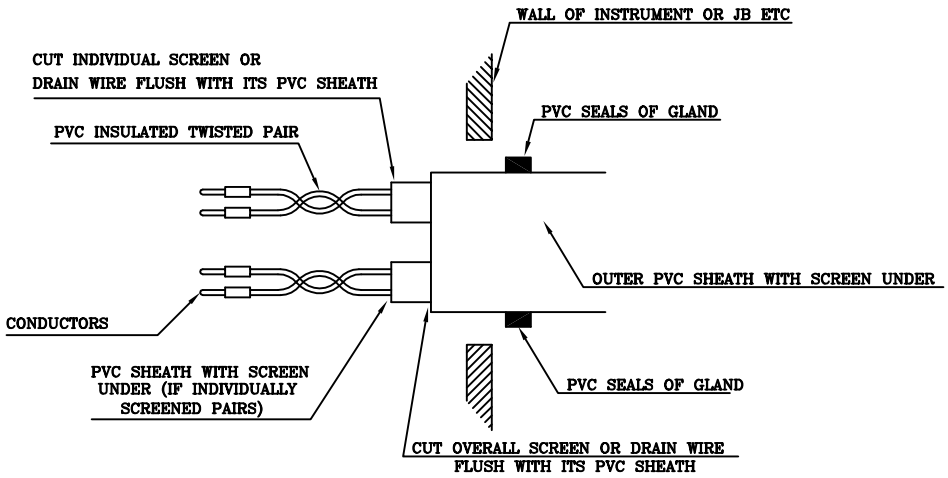


TERMINAL BLOCK

TYPICAL METHOD OF MAINTAINING CABLE SCREEN
CONTINUITY THROUGH JUNCTION BOXES ETC.



TYPICAL METHOD OF TERMINATING
CABLES AT CONTROL ROOM PANELS
OR MARSHALLING RACKS



TYPICAL METHOD OF INSULATING CABLE SCREENS AT CABLE TERMINATION

NOTES:

1- SCREENS MUST BE INSULATED FROM ANY JB STEEL WORK (TAPE OR SLEEVE...)
2- SCREENS MUST IN ALL CASES BE INSULATED (BY MEANS OF THE PVC SHEATHS) FROM EACH OTHER AND FROM ANY CONTACT WITH METAL CASES OF THE EQUIPMENT.
3- ALLOW SLACK IN THE CORES IN ORDER TO REMOVE ANY STRESS ON THE TERMINAL CONNECTION.

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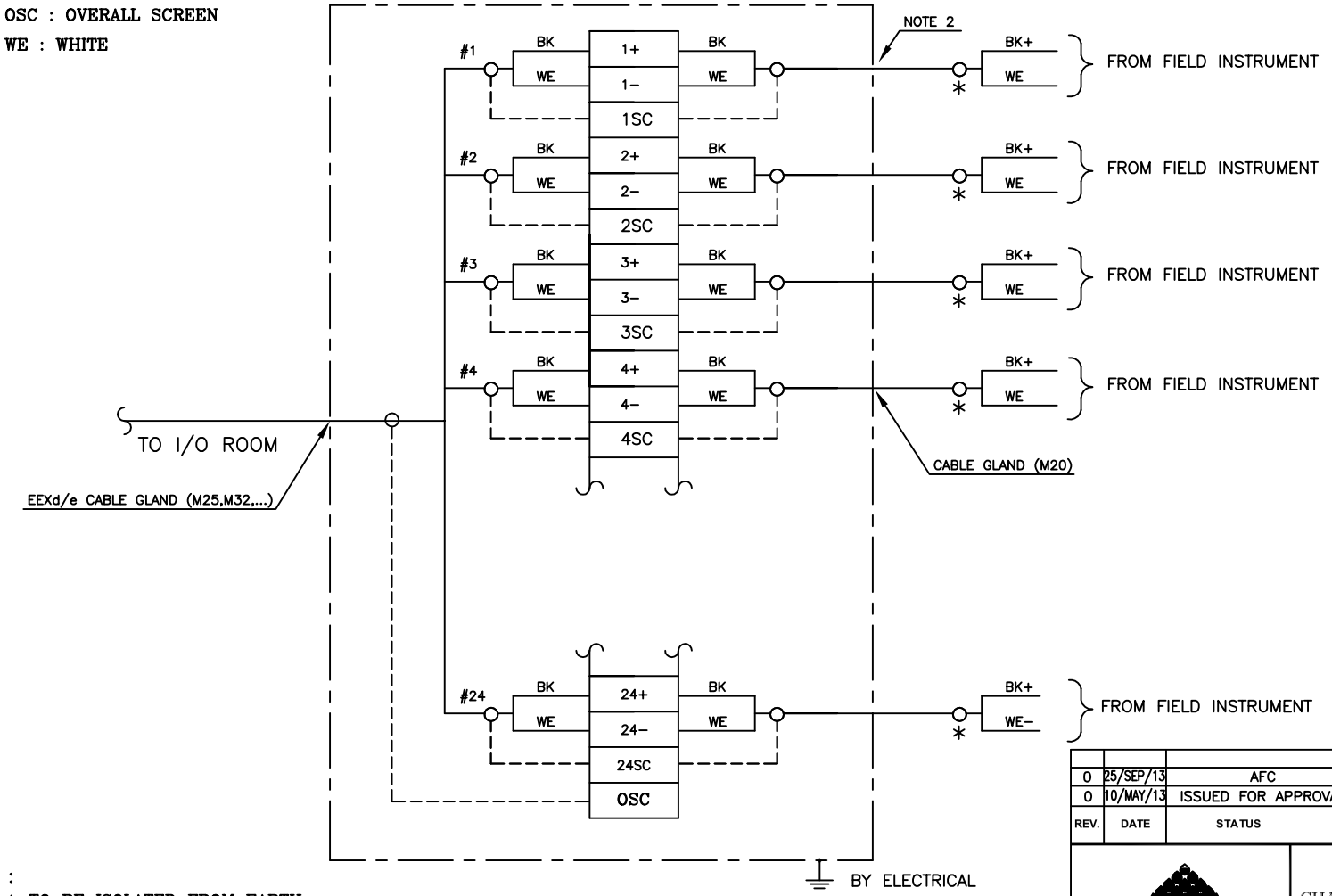
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BK : BLACK

SC : SCREEN

OSC : OVERALL SCREEN

WE : WHITE



NOTES :

∗ TO BE ISOLATED FROM EARTH.

∗∗ ALL ELECTRICAL DISCRETE AND 4–20 mA JUNCTION BOXES SHALL BE IP–65 AND INTRINSICALLY SAFE.

NOTE 1 :

FOR IS ANALOG :JB–II–XXX (JB:JUNCTION BOX,II:INTRINSICALLY SAFE ANALOG,XXX:SERIAL No.)

NOTE 2 :

THE OTHER SHEATH OF INSTRUMENT CABLES SHALL BE COLOURED AS FOLLOWS:
FLAME RETARDANT TYPE (NOS–IS)–GREY.
PRIMARY EARTH GROUND GREEN/YELLOW.
FLAME RETARDANT TYPE (IS)–BLUE.
ELECTRONIC GROUND GREEN.
IS ELECTRONIC GROUND YELLOW WITH BLUE STRIPES.

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CH–211	IN	A4	003	7 /18	1

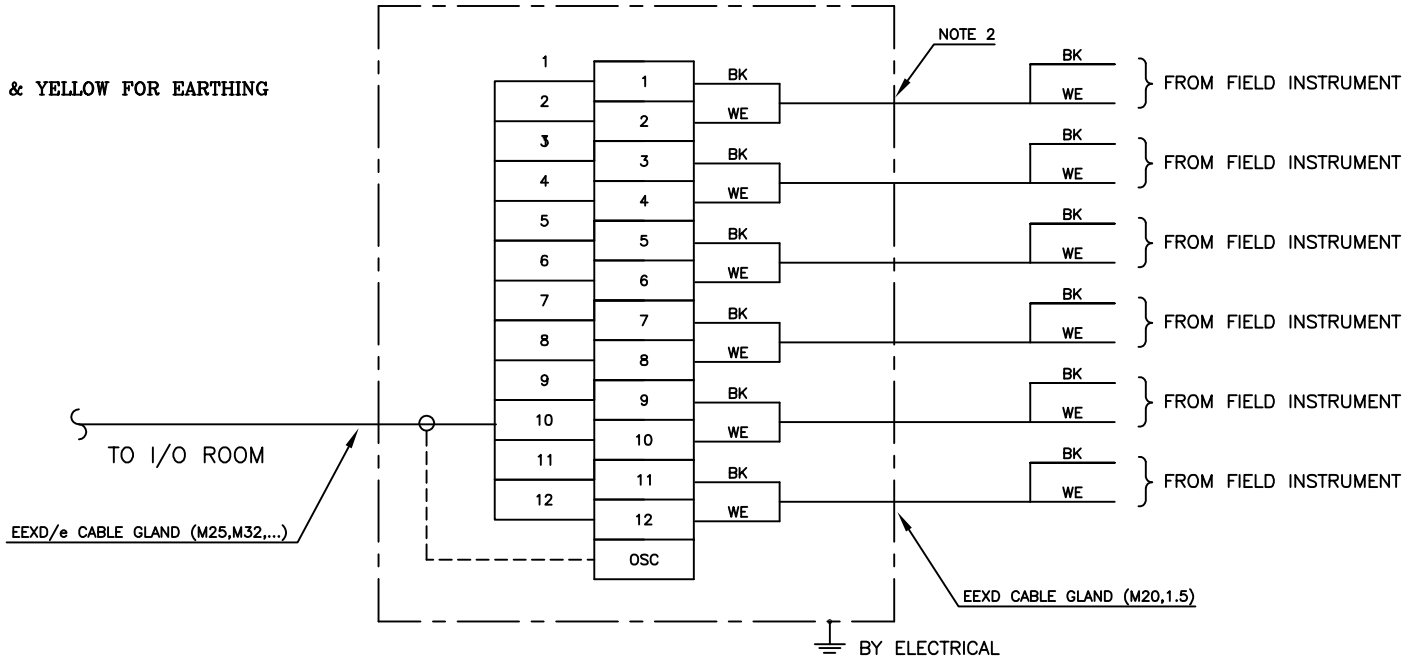
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JUNCTION BOX NUMBER
NOTE 1

BK : BLACK

WE : WHITE

G/Y : GREEN & YELLOW FOR EARTHING



NOTES :

* TO BE ISOLATED FROM EARTH.

** ALL ELECTRICAL DISCRETE AND 4-20 mA JUNCTION BOXES SHALL BE IP-65 AND INTRINSICALLY SAFE.

NOTE 1 :

FOR NIS DISCRETE & SELONUID SIGNAL:
JB-NID-XXX(JB:JUNCTION BOX,NID:NON INTIRINSICALLY SAFE
DISCRETE SIGNAL,XXX:SERIAL NO:)
JB-NIV-XXX(JB:JUNCTION BOX,NIV:NON INTIRINSICALLY
SAFE SOLENOID SIGNAL,XXX:SERIAL NO.)

NOTE 2 :

THE OTHER SHEATH OF INSTRUMENT CABLES SHALL BE COLOURED AS FOLLOWS:
FLAME RETARDANT TYPE (NOS-IS)-GREY.
PRIMARY EARTH GROUND GREEN/YELLOW.
FLAME RETARDANT TYPE (IS)-BLUE.
ELECTRONIC GROUND GREEN.
IS ELECTRONIC GROUND YELLOW WITH BLUE STRIPES.

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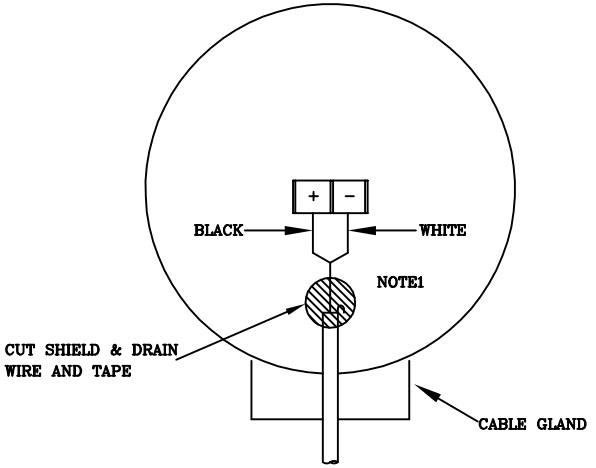
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INSTRUMENT HOOK-UP
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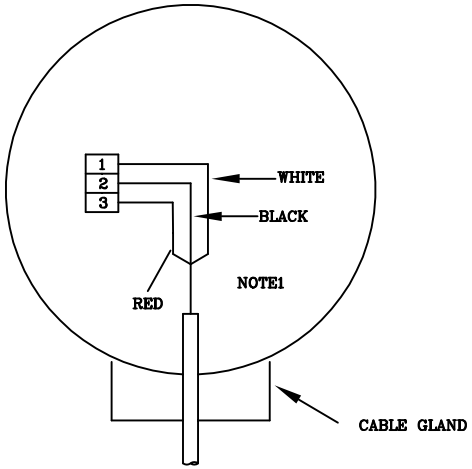
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ITEM	No. REQ.	SIZE	DESCRIPTION	MATERIAL	REMARKS
100	–	2.5mm²	WIRING PIN, CRIMP TYPE	BRASS	
101	–	1.5mm²	WIRING PIN, CRIMP TYPE	BRASS	
120	–	–	WIRE CORE FERRULES, NO.1 TO 9	PLASTIC	



DETAIL FOR VALVE POSITIONERS,TRANSMITTERS AND LOCAL INDICATORS

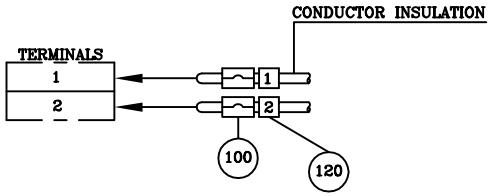


DETAIL FOR RTD

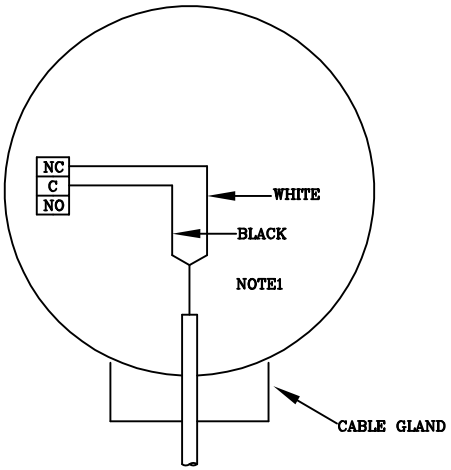
NOTS:

1– ALLOW SLACK IN THE CORES IN ORDER TO REMOVE ANY STRESS ON THE TERMINAL CONNECTION.

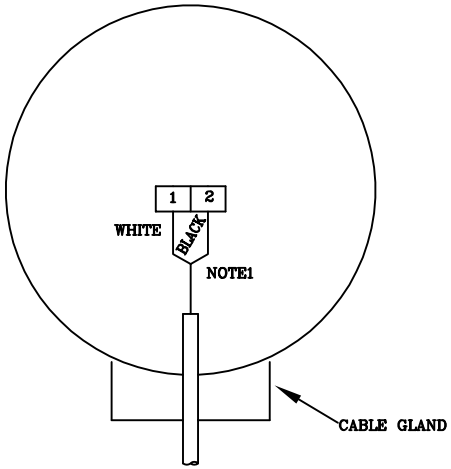
2– PINS & FERRULES SHALL BE PROVIDED FOR EACH CONNECTION TO TERMINALS ACCORDING TO DETEAIL "A".



DETAIL "A"



DETAIL FOR SWITCHES
TYPICAL HIGH FUNCTION SWITCH



DETAIL FOR SOLENOID VALVES

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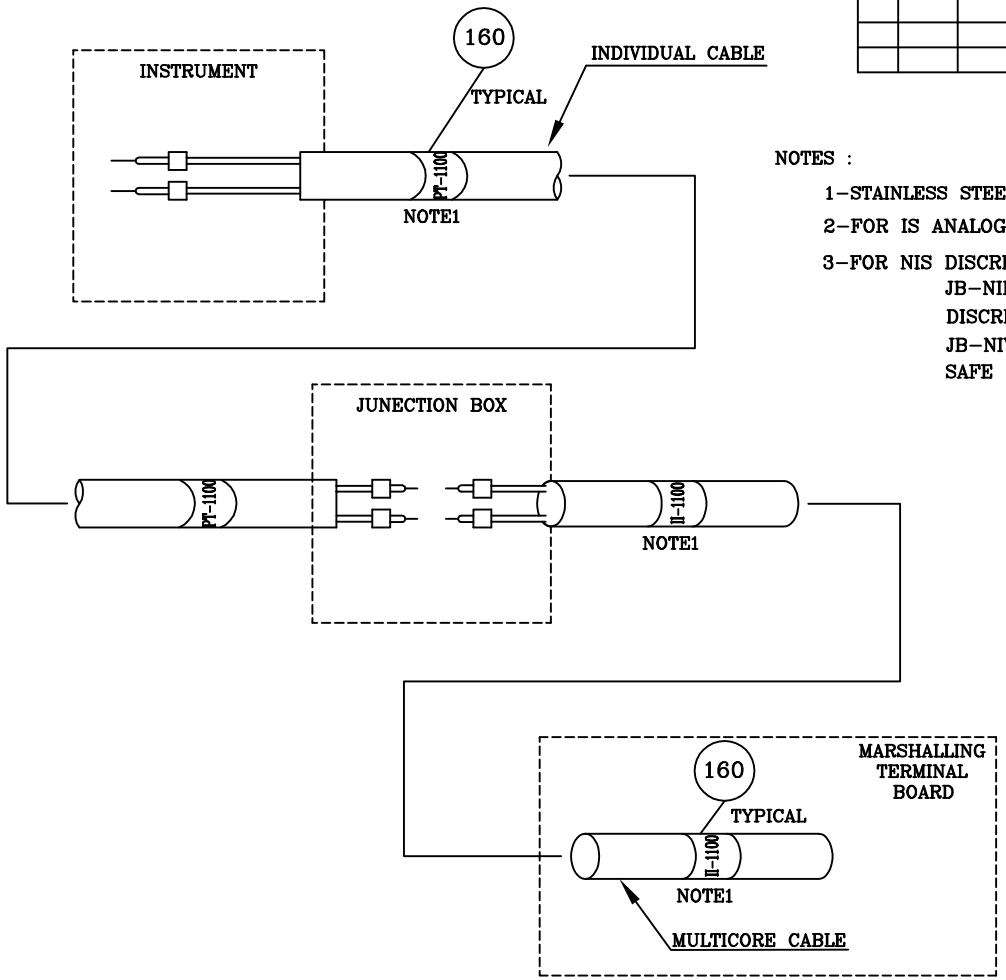
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ITEM	No. REQ.	SIZE	DESCRIPTION	MATERIAL	REMARKS
160	–	10mmx15mm	CABLE MARKER	S.S.	
161	–	10mmx25mm	CABLE MARKER	S.S.	
166	–	10mmx35mm	CABLE MARKER	S.S.	



NOTES :

1–STAINLESS STEEL STRIP WITH CABLE NUMBER STAMPED ON.

2–FOR IS ANALOG :JB–II–XXX (JB:JUNCTION BOXE,II:INTRINSICALLY SAFE ANALOG,XXX:SERIAL No.)

3–FOR NIS DISCRETE & SELONUID SIGNAL:
JB–NID–XXX(JB:JUNCTION BOX,NID:NON INTERINSICALLY DISCRETE SIGNAL,XXX:SERIAL NO:)
JB–NIV–XXX(JB:JUNCTION BOX,NIV:NON INTERINSICALLY SAFE SOLENOID SIGNAL,XXX:SERIAL NO.)

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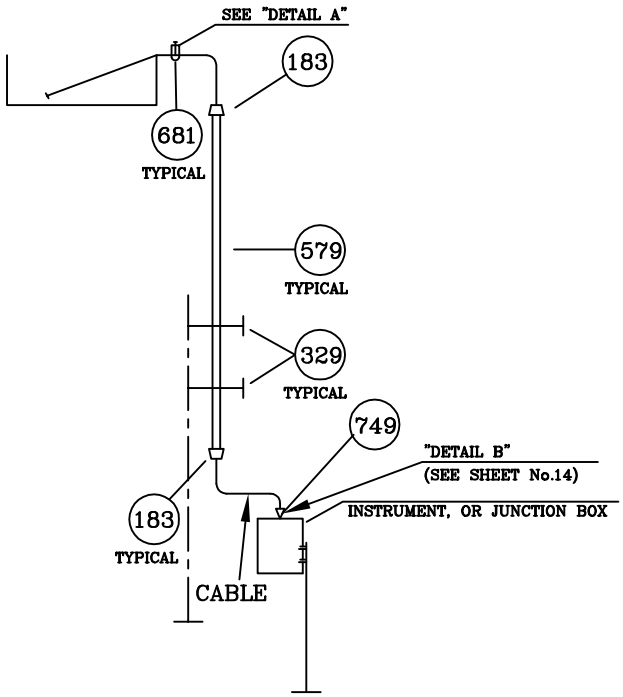
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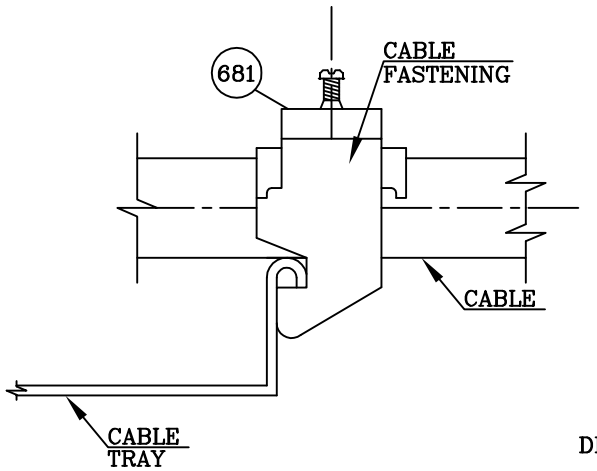
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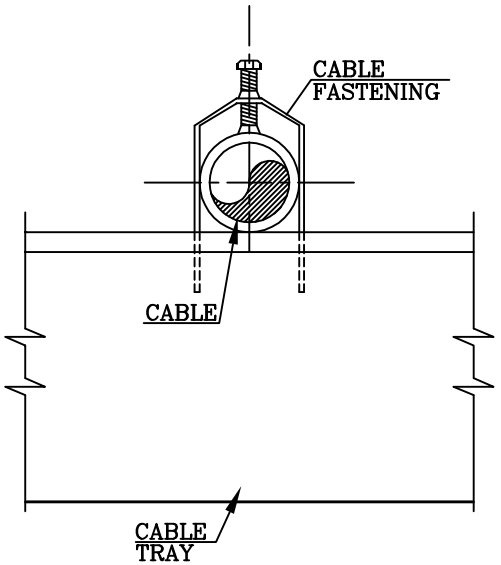
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ITEM	No. REQ.	SIZE	DESCRIPTION	MATERIAL	REMARKS
183	–	3/4"	BUSHING	PLASTIC	
184	–	1"	BUSHING	PLASTIC	
237	–	1 1/2"	BUSHING	PLASTIC	
238	–	2"	BUSHING	PLASTIC	
327	–	2"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
329	–	3/4"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
331	–	1"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
338	–	1 1/2"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
579	–	3/4"	CONDUIT	GALVANIZED.STEEL	
580	–	1"	CONDUIT	GALVANIZED.STEEL	
582	–	1 1/2"	CONDUIT	GALVANIZED.STEEL	
583	–	2"	CONDUIT	GALVANIZED.STEEL	
681	–	6 ÷ 12mm DIA.	CABLE FASTENING	GALVANIZED.STEEL	
687	–	16 ÷ 22mm DIA.	CABLE FASTENING	GALVANIZED.STEEL	
693	–	28 ÷ 34mm DIA.	CABLE FASTENING	GALVANIZED.STEEL	
749	–	M20	CALBE GLAND WITH SHROUD	BRASS	
756	–	M25	CALBE GLAND WITH SHROUD	BRASS	
770	–	M32	CALBE GLAND WITH SHROUD	BRASS	
780	–	M40	CALBE GLAND WITH SHROUD	BRASS	





DETAIL "A"

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
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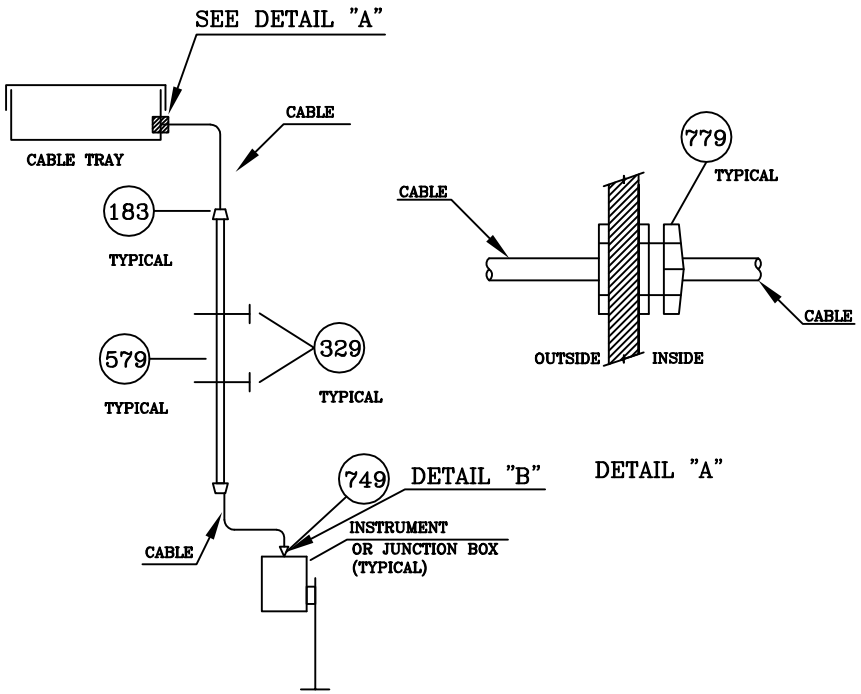
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(ELECTRICAL CONNECTION DETAIL)

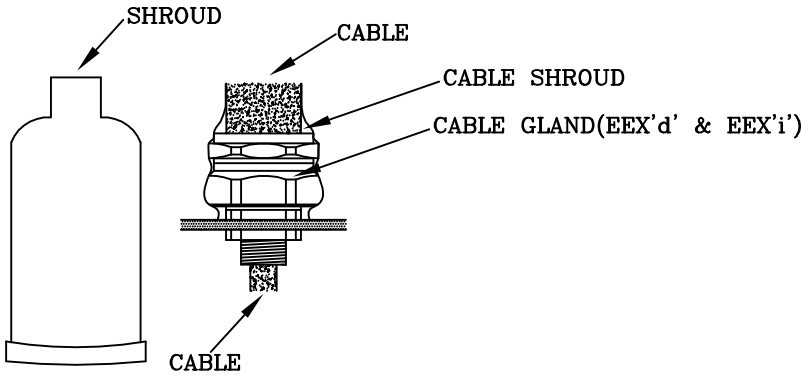
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CH–211	IN	A4	003	11/18	1

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DETAIL "A"

ITEM	No. REQ.	SIZE	DESCRIPTION	MATERIAL	REMARKS
183	–	3/4"	BUSHING	PLASTIC	
184	–	1"	BUSHING	PLASTIC	
237	–	1 1/2"	BUSHING	PLASTIC	
238	–	2"	BUSHING	PLASTIC	
327	–	2"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
329	–	3/4"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
331	–	1"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
338	–	1 1/2"	U–BOLT WITH NUTS	GALVANIZED.STEEL	
579	–	3/4"	CONDUIT	GALVANIZED.STEEL	
580	–	1"	CONDUIT	GALVANIZED.STEEL	
582	–	1 1/2"	CONDUIT	GALVANIZED.STEEL	
583	–	2"	CONDUIT	GALVANIZED.STEEL	
749	–	M20	CALBE GLAND WITH SHROUD	BRASS	
756	–	M25	CALBE GLAND WITH SHROUD	BRASS	
770	–	M32	CALBE GLAND WITH SHROUD	BRASS	
778	–	M20	BUSHING WITH LOCK NUT	GALVANIZED.STEEL	
779	–	M25	BUSHING WITH LOCK NUT	GALVANIZED.STEEL	
788	–	M32	BUSHING WITH LOCK NUT	GALVANIZED.STEEL	



DETAIL "B"

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53–74–1845

CHAGALESH CONSULTING ENGINEERS

CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK–UP
(ELECTRICAL CONNECTION DETAIL)

PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH–211	IN	A4	003	12/18	1

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TABLE-2

CONDUIT SIZE	No. OF CONDUCTORS	CONDUCTOR TYPE
1"		$2Cx1.5mm^2$ $1x2x1.5mm^2$ $2Cx2.5mm^2$
1 1/2"		$10x2x1mm^2$ $12Cx1mm^2$ $19Cx1mm^2$ $7x2x1mm^2$ $19Cx2.5mm^2$ $8Cx1mm^2$

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	CONTRACT NO.
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	53-74-1845

CHAGALESH CONSULTING ENGINEERS

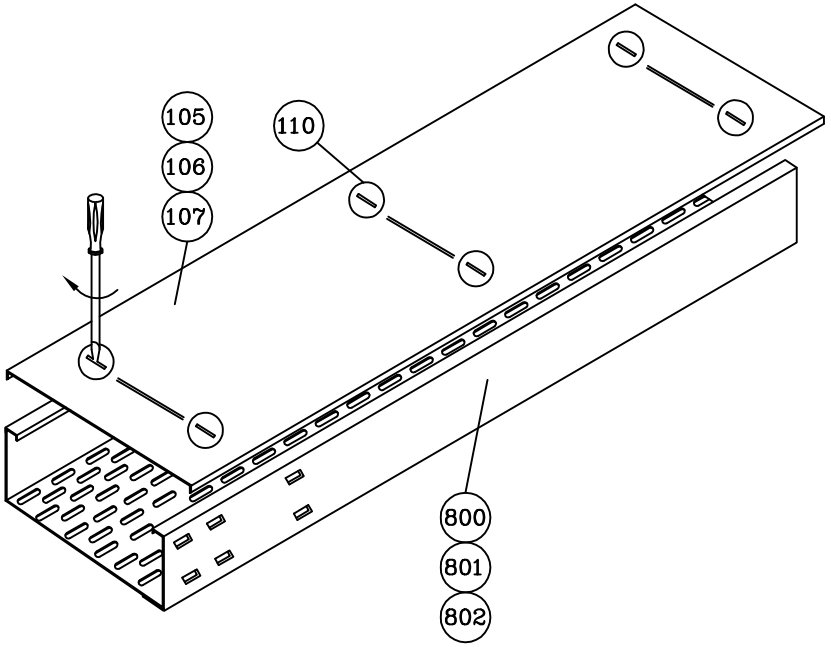
CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK-UP
(ELECTRICAL CONNECTION DETAIL)

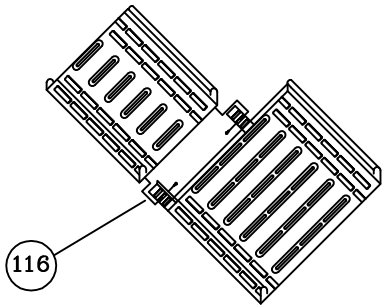
PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	13 /18	1

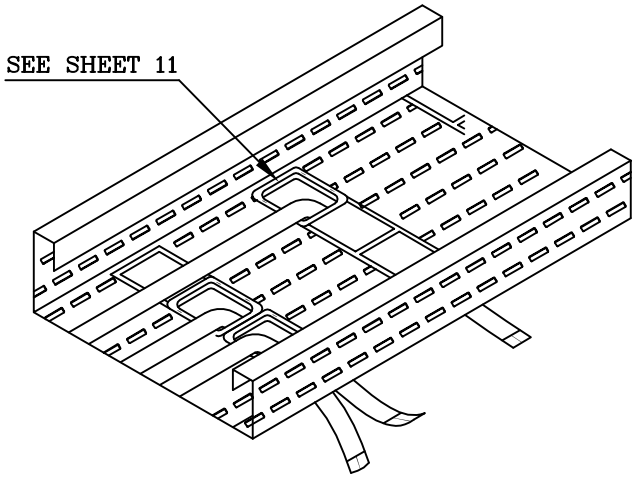
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ITEM	NOTE 1 No. REQ.	SIZE IN MILLIMETER	DESCRIPTION	MATERIAL	REMARKS
800	–	700 mm WIDTH	CABLE TRAY	GALV. STEEL	
801	–	500 mm WIDTH	CABLE TRAY	GALV. STEEL	
802	–	100 mm WIDTH	CABLE TRAY	GALV. STEEL	
105	–	700 mm WIDTH	CABLE TRAY COVER	GALV. STEEL	
106	–	500 mm WIDTH	CABLE TRAY COVER	GALV. STEEL	
107	–	100 mm WIDTH	CABLE TRAY COVER	GALV. STEEL	
110	–	ø 3/4"	SCREW	GALV. STEEL	
116	–	700x500	REDUCING ANGLE	GALV. STEEL	

NOTE 1: CABLE TRAY PROVIDED AS PER MATERIAL REQUISITION FOR CABLE TRAY.





REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53-74-1845

CHAGALESH CONSULTING ENGINEERS

CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

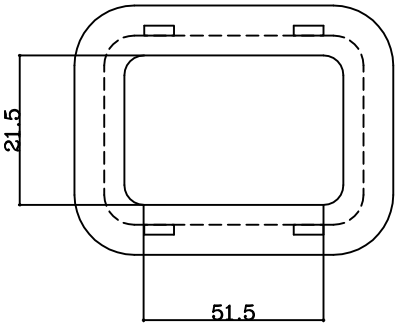
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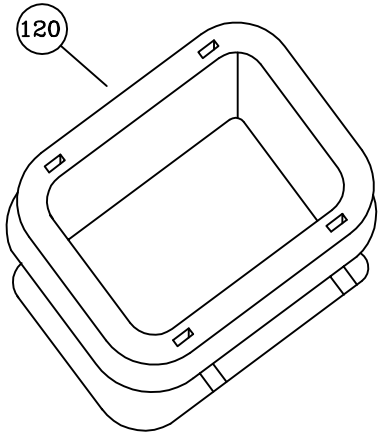
INSTRUMENT HOOK-UP (ELECTRICAL CONNECTION DETAIL)

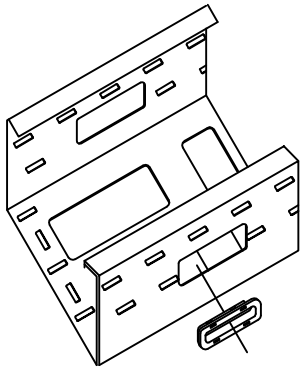
PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	14/18	1

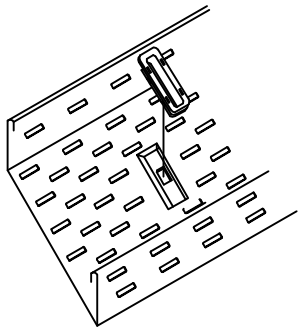
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ITEM	No. REQ.	SIZE	DESCRIPTION	MATERIAL	REMARKS
120	–	21.5x51.5mm	CABLE PROTECTION RING	–	









REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53-74-1845

CHAGALESH CONSULTING ENGINEERS

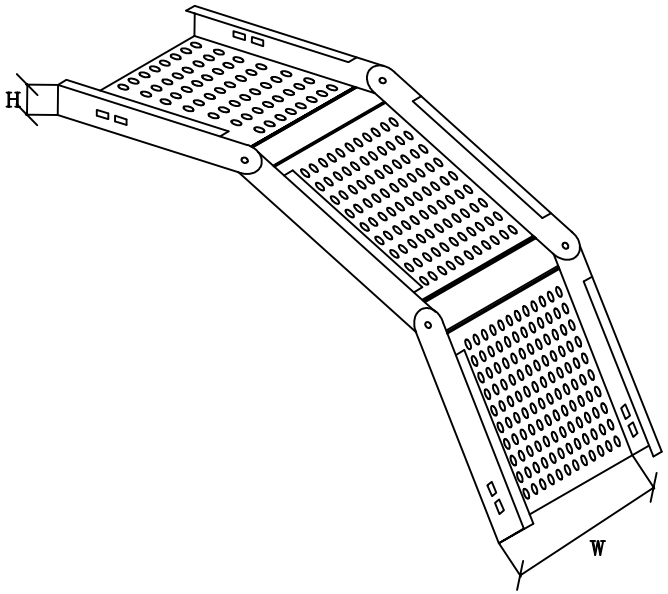
CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK-UP (ELECTRICAL CONNECTION DETAIL)

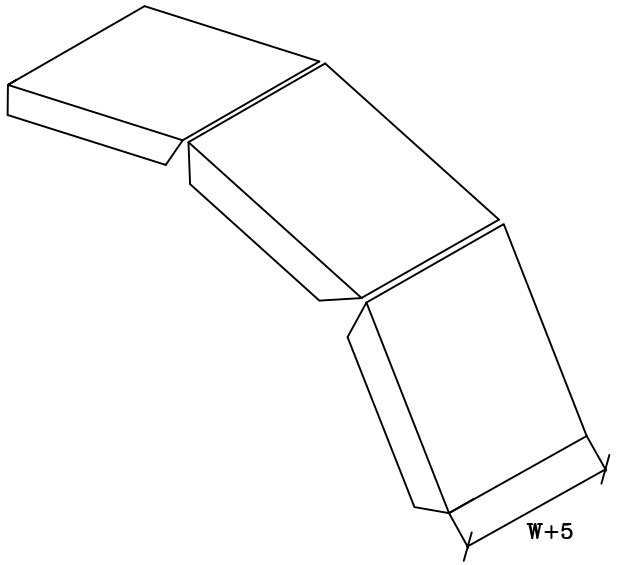
PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	15 /18	1

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TRAY ADJUSTABLE RISER

"TAR"



TRAY ADJUSTABLE RISER COVER

"TARC"

FITTING CODE	W1(mm)	H(mm)	TH(mm)	QTY.
TAR 700	700	NOTE 1	NOTE 1	NOTE 1

CABLE TRAY ADJUSTABLE RISER COVER "TAR"

NOTE 1: CABLE TRAY WILL BE PROVIDED AS PER MATERIAL REQUISITION FOR CABLE TRAY.

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53-74-1845

CHAGALESH CONSULTING ENGINEERS

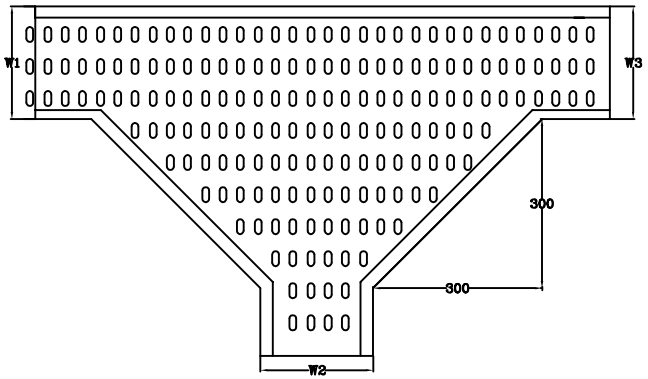
CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK-UP
(ELECTRICAL CONNECTION DETAIL)

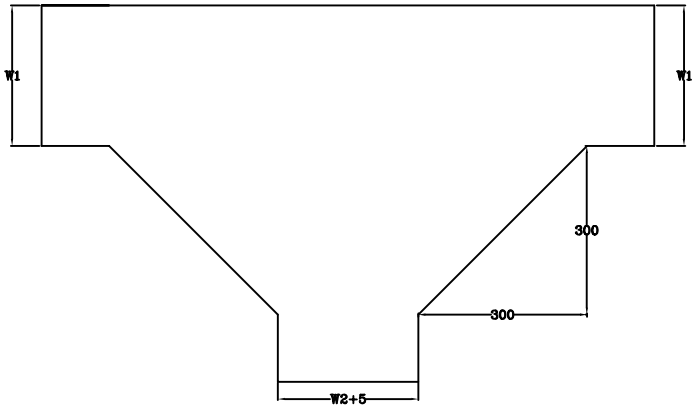
PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	16 /18	1

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CABLE TRAY TEE

"TT"



CABLE TRAY TEE COVER

"TTC"

FITTING CODE	W2&W3(mm)	W1(mm)	H(mm)	TH(mm)	QTY. NOTE 1
TT 100	100	100	50	1.5	–
TT 700	700	500	60	2	–

NOTE 1: CABLE TRAY PROVIDED AS PER MATERIAL REQUISITION FOR CABLE TRAY.

CABLE TRAY TEE & COVER

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53-74-1845

CHAGALESH CONSULTING ENGINEERS

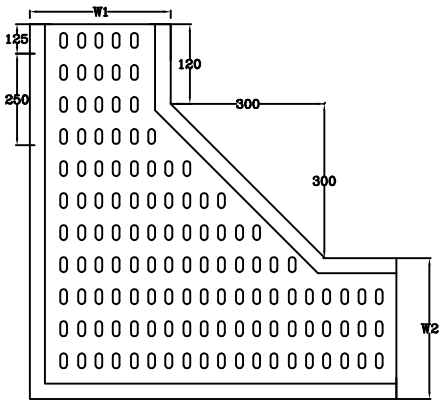
CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

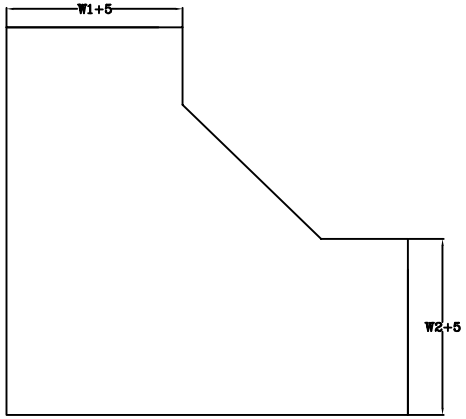
INSTRUMENT HOOK-UP
(ELECTRICAL CONNECTION DETAIL)

PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	17/18	1

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CABLE TRAY ELBOW
"TE"



CABLE TRAY ELBOW COVER
"TEC"

FITTING CODE	W1(mm)	W2(mm)	H(mm)	TH(mm)	QTY.(NOTE1)
TE 700	700	700	60	2.0	–
TE 100	100	100	50	1.5	–
TE 500	500	500	60	2.0	–

NOTE 1: CABLE TRAY PROVIDED AS PER MATERIAL REQUISITION FOR CABLE TRAY.

CABLE TRAY ELBOW & COVER

REV.	DATE	STATUS	PREP.	CHKD.	APPD.	
0	25/SEP/13	AFC	F.L.	K.Z.	K.Z.	
0	10/MAY/13	ISSUED FOR APPROVAL	F.L.	K.Z.	K.Z.	CONTRACT NO.
						53-74-1845

CHAGALESH CONSULTING ENGINEERS

CHAGALESH CONSULTING ENGINEERS
MOBILE OIL TREATER (M.O.T)

TITLE:

INSTRUMENT HOOK-UP
(ELECTRICAL CONNECTION DETAIL)

PROJECT NO.	DISIPLINE	SIZE	SERIAL NO.	SHEET	REV.
CH-211	IN	A4	003	18/18	1

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