

L12012
(A1-F2 LENS)
10"-INF

USED IN R720 SPECIAL
FIXED FOCUS
0.75 SPOT @ 15"

L12011
(A1-F1 LENS)
10" TO INF.

USED IN AC901 SPECIAL
FIXED FOCUS AT INFINITY

Product DATA Control

└ P.D.C. REPORTS

└ Single Level Bill of MAT.

R 720

THIS SPECIAL FOCUSES AT INFINITY.

CALIBRATE @ 15"

PAGE 1 OF 4
DATE :07-17-1998
REVISION:A
W.O.NO :307991
CUSTOMER:IRCON GMBH
LOCATION:GERMANY

INFRARAIL SPECIAL NUMBER R720

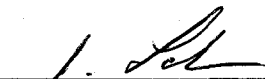
CUSTOMER REQUIRES A SPECIAL TEMPERATURE RANGE "F" SERIES INFRARAIL PYROMETER
ALONG WITH A SPECIAL RUGGEDIZED FIBER OPTIC LIGHT GUIDE AS FOLLOWS:

MODEL: DNF99-99C
RANGE: 700 - 1200 DEG. C
RESOLUTION: SPECIAL FIXED FOCUS .75" @ 15"
FIBER OPTIC: 10 FEET RUGGEDIZED HOSE

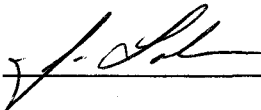
GENERALITY OF APPLICATION AND RESTRICTIONS:

UNRESTRICTED: SUITABLE FOR USE WITH ALL STANDARD OPTIONS.

WRITTEN BY:


J. LAKNER

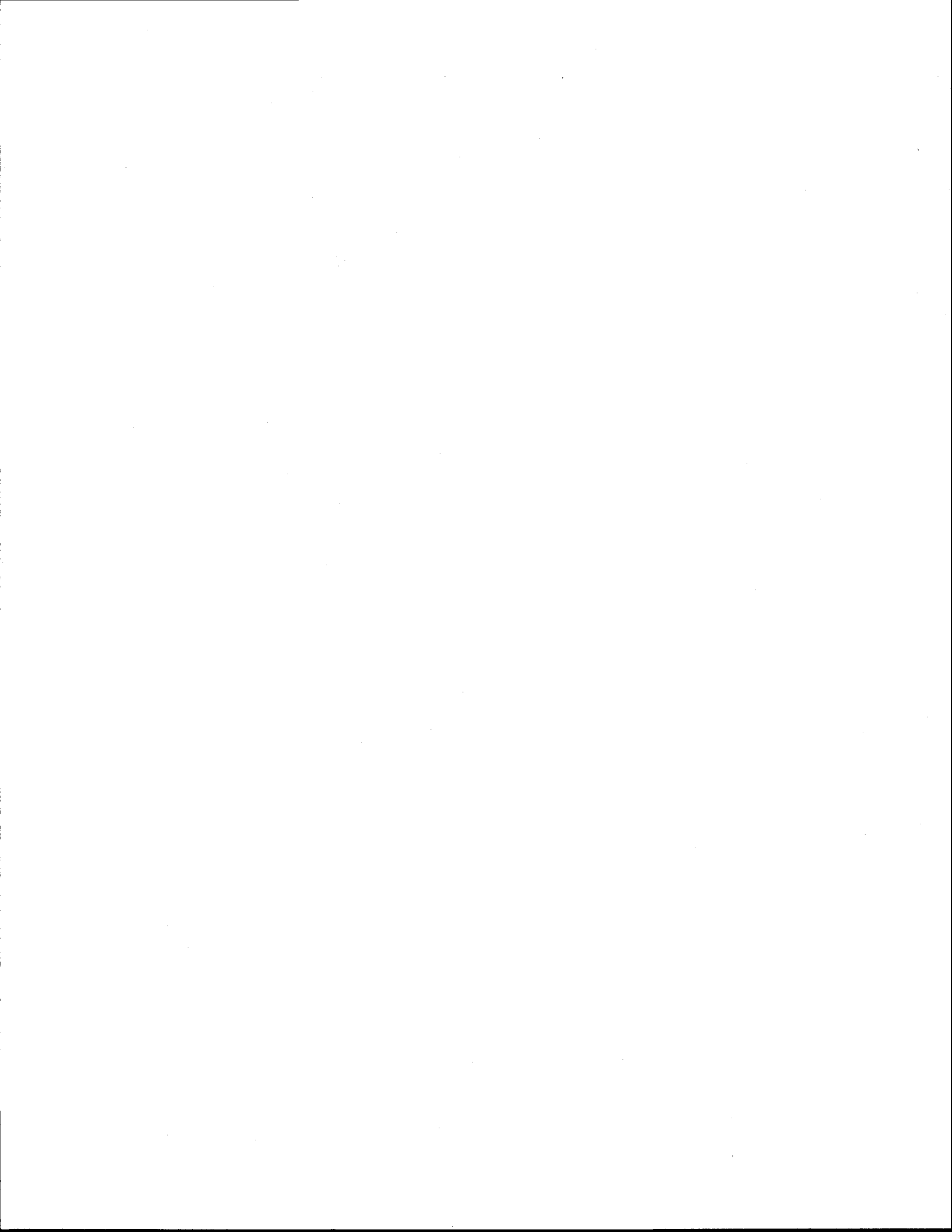
APPROVED BY:

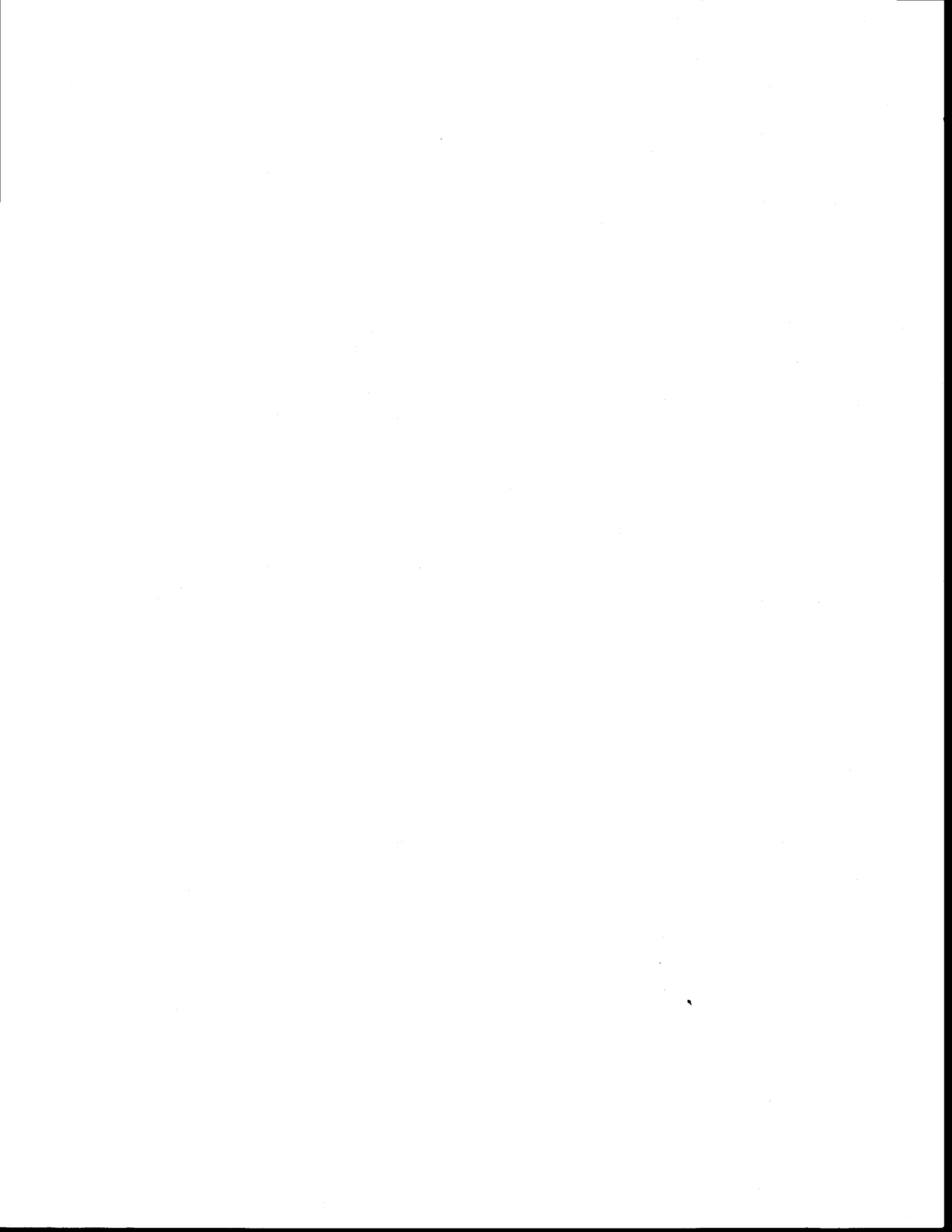


DATE:

7-17-98







**DRAWING (S) TOO LARGE
TO SCAN.**

**TO VIEW THE ORIGINAL
DESIGN,**

**A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

.LI	Item.. X	..Part Number..	Rev	.Quantity.	...Alt-Part....	.....Reference Designator.....	.UM.	ECO No.	ECO Date..	Start Use.
		Description		Inv	Oper.			Yield%		End Use...
	P	L12011	B	1.0000			EA			
		A1-F1 LENS 10"-INF				<i>D/30</i>				
1		453172	A	1.0000			EA	3569	01-25-1996	
		RETAINER RING OBJECTIVE L			1	1		100.00		
2		432502	C	2.0000			EA	3569	01-25-1996	
		O RING .547ID X .051THK B			1	2		100.00		
3		620222	A	1.0000			EA	3569	01-25-1996	
		WINDOW PROTECTIVE IR QUAR			1	3		100.00		
4		453222	E	1.0000			EA	3569	01-25-1996	
		RETAINER RING SPRING OBJ			1	4		100.00		
5	P	L12011/01		0.0000			EA			
		SEE EXTENDED DESCRIPTION			1			100.00		
6		610752	A	1.0000			EA	3569	01-25-1996	
		LENS EQUICONVEX SK4 GLASS			1	6		100.00		
7		445862	A	1.0000			EA	3569	01-25-1996	
		WASHER .627ODX.547IDX.007			1	7		100.00		
8		610742	A	1.0000			EA	3569	01-25-1996	
		LENS BICONCAVE SF2 GLASS			1	8		100.00		
9		453192	G	1.0000			EA	3569	01-25-1996	
		HOUSING OUTER REIMAGE MP/			1	9		100.00		
10		453142	B	1.0000			EA	3569	01-25-1996	
		APERTURE THREADED .255 ID			1	10		100.00		
11	X	453134	A	2.0000			EA	3569	01-25-1996	
		CAN GLARE STOP .173D PAIN			1	11		100.00		
12	P	L12011/02		0.0000			EA			
		SEE EXTENDED DESCRIPTION			1			100.00		
13		453162	M	1.0000			EA	3569	01-25-1996	
		HOUSING REAR REIMAGE MP/M			1	14		100.00		
14		20100674A		1.0000			EA	3569	01-25-1996	
		SCREW #10-32 X 3/16 SKT S			1	15		100.00		
15		475962	F	1.0000			EA	3569	01-25-1996	
		LABEL REIMAGE LENS EXT TI			1	16		100.00		
										NOTE: TO BE COMPLETED PER WORK ORDER
										...
16		453202	B	2.0000			EA	3569	01-25-1996	
		NUT HEX 7/8-20 S/S			1	17		100.00		
17		432662		2.0000			EA	3569	01-25-1996	
		PLASTIC CAP/PLUG TAPPED			1	18		100.00		
18		411202		1.0000			EA	3569	01-25-1996	
		KEY HEX 3/32" SHORT ARM			1	19		100.00		
19	P	L12011/03		0.0000			EA			
		SEE EXTENDED DESCRIPTION			1			100.00		

FOR AC901

*FIXED FOCUS @ INFINITY
(SPECIAL REIMAGING)
Lens housing*

Manufacturing Center Documents

Sensing Head Cell

Final Assembly

5/20/96 11:07:30 AM

Location SH#8

Proc#	Rev	Drawing#	Rev BOM/DOC#	Rev Comp	Description
A10293	E	L13151	B	Y	Fibre optic assembly, 2 foot "Z" head - MOD II
A10293	E	L13152	B	Y	Fibre optic assembly, 4 foot "Z" head - MOD II
A10293	E	L13153	B	Y	Fibre optic assembly, 6 foot "Z" head - MOD II
758A	B10277	C L12081	B	Y	Re-imaging lens assembly, Z1 - MOD II
758A	B10277	C L12082	B	Y	Re-imaging lens assembly, Z2 - MOD II
	B10278	C L12083	B	Y	Extension tip assembly, ET-2 - MOD II
	B10278	C L12084	B	Y	Extension tip assembly, ET-5 - MOD II
	B10925	D L33401	C	Y	Fibre optic extension tip assembly
	B10927	E L120F10	A	Y	Fibre optic light guide assembly, 10 foot - Viton
	B10927	E L120FA1	B	Y	Fibre optic light guide assy (1.6u) 10 foot - SA
	B10927	E L120FA4	C	Y	Fibre optic light guide assembly, 3 foot - "R/SR"
	B10927	E L120FA5	E	Y	Fibre optic light guide assembly, 10 foot - "R/SR"
	B10927	E L120FA7	C	Y	Fibre optic light guide assembly, 3 foot - 6000
	B10927	E L120FA8	B	Y	Fibre optic light guide assembly, 20 foot - "R/SR"
	B10927	E L120FA9	A	Y	Fibre optic light guide assembly, 25 foot - Spl.
	B10927	E L120FC5	A	Y	Fiber optic - light guide - 2/20 ser - 10"
	B11153	L12017	Y	Y	A3 Lens assembly
	C10924	C L12011	B	Y	A1-F1 re-imaging lens D/30 10" - INF
	C10924	C L12012	B	Y	A1-F2 re-imaging lens D/60 10" - INF
	C10924	C L12013	B	Y	A1-F3 re-imaging lens D/30 X D/150 10" - INF
	C10939	C L12014	B	Y	A2-F1 re-imaging lens D/30 6" - 10"
	C10939	C L12015	B	Y	A2-F2 re-imaging lens D/60 6" - 10"
	C10939	C L12016	B	Y	A2-F3 re-imaging lens D/30 X D/150 6" - 10"
	C10947	E L12001	D	Y	P1-F1 re-imaging lens D/30 10" - INF
	C10947	E L12002	D	Y	P1-F2 re-imaging lens D/60 10" - INF
	C10947	E L12003	D	Y	P1-F3 re-imaging lens D/30 X D/150 10" - INF
	C10948	E L12004	D	Y	P2-F1 re-imaging lens D/30 6" - 10"
	C10948	E L12004F	A	Y	P2-F1 re-imaging lens D/30 6" - 10" - F series
	C10948	E L12005	D	Y	P2-F2 re-imaging lens D/60 6" - 10"
	C10948	E L12005F	A	Y	P2-F2 re-imaging lens D/60 6" - 10" - F series
	C10948	E L12006	D	Y	P2-F3 re-imaging lens D/30 X D/150 6" - 10"
	C10948	E L12006F	A	Y	P2-F3 re-imaging lens D/30 X D/150 6" - 10" F ser.

BUILD THIS ASSY. USING SPECIAL FINE FOCUS REIMAGING ASSEMBLY FOR SPECIAL K125

.LI	Item.. X	..Part Number..	Rev	.Quantity.	...Alt-Part....	.....Reference Designator.....	.UM.	ECO No.	ECO Date..	Start Use.
		Description		Inv	Oper.			Yield%		End Use...
	P	L12012	B	1.0000						
		A1-F2 LENS 10"-INF								
1		453172	A	1.0000			EA	3569	01-25-1996	
		RETAINER RING OBJECTIVE L			1	1		100.00		
2		432502	C	2.0000			EA	3569	01-25-1996	
		O RING .547ID X .051THK B			1	2		100.00		
3		620222	A	1.0000			EA	3569	01-25-1996	
		WINDOW PROTECTIVE IR QUAR			1	3		100.00		
4		453222	E	1.0000			EA	3569	01-25-1996	
		RETAINER RING SPRING OBJ			1	4		100.00		
5	P	L12012/01		0.0000			EA			
		SEE EXTENDED DESCRIPTION			1			100.00		
6		610752	A	1.0000			EA	3569	01-25-1996	
		LENS EQUICONVEX SK4 GLASS			1	6		100.00		
7		445862	A	1.0000			EA	3569	01-25-1996	
		WASHER .627ODX.547IDX.007			1	7		100.00		
8		610742	A	1.0000			EA	3569	01-25-1996	
		LENS BICONCAVE SF2 GLASS			1	8		100.00		
9		453192	G	1.0000			EA	3569	01-25-1996	
		HOUSING OUTER REIMAGE MP/			1	9		100.00		
10		453142	B	1.0000			EA	3569	01-25-1996	
		APERTURE THREADED .255 ID			1	10		100.00		
11	X	453134	A	2.0000			EA	3569	01-25-1996	
		CAN GLARE STOP .173D PAIN			1	11		100.00		
12		453322	A	1.0000			EA	3569	01-25-1996	
		FIELD STOP .040 DIAMETER			1	12		100.00		
13		453162	M	1.0000			EA	3569	01-25-1996	
		HOUSING REAR REIMAGE MP/M			1	14		100.00		
14		20100674A		1.0000			EA	3569	01-25-1996	
		SCREW #10-32 X 3/16 SKT S			1	15		100.00		
15		475962	F	1.0000			EA	3569	01-25-1996	
		LABEL REIMAGE LENS EXT TI			1	16		100.00		
										NOTE: TO BE COMPLETED PER WORK ORDER
16		453202	B	2.0000			EA	3569	01-25-1996	
		NUT HEX 7/8-20 S/S			1	17		100.00		
17		432662		2.0000			EA	3569	01-25-1996	
		PLASTIC CAP/PLUG TAPPED			1	18		100.00		
18		411202		1.0000			EA	3569	01-25-1996	
		KEY HEX 3/32" SHORT ARM			1	19		100.00		
19	P	L12012/02		0.0000			EA			
		SEE EXTENDED DESCRIPTION			1			100.00		

D/80

SPECIAL
454582

FOR R720
FIXED FOCUS
.75" SPOT @ 15"

REIMAGING
(SPECIAL LENS)
HOUSING

INFRARAIL SPECIAL NUMBER R720 CONTINUED,

PRODUCTION INSTRUCTIONS:

START WITH A MODEL DNFFB-13C SENSING HEAD AND MAKE THE FOLLOWING CHANGES:

INSTALL THE M1 MODULE PER BILL OF MATERIAL PER PAGE 3.
SECURE THE SPECIAL F-HEAD SENSOR P.N. EX-4448 FROM ENGINEERING AND
SUBSTITUTE FOR THE STANDARD HEAD. BUILD THE SENSOR AS PER STANDARD.
BUILD THE REIMAGING LENS ASSEMBLY PER L12012, BUT USE SPECIAL REIMAGING
LENS HOUSING 454582 IN LIEU OF THE STANDARD HOUSING.
BUILD THE RUGGEDIZED FIBER OPTIC CABLE ASSEMBLY PER DRAWING C-11199.

CALIBRATION INSTRUCTIONS:

CALIBRATE AS PER STANDARD.
ADJUST FULL SCALE CURRENT TO: 2.500 μ A.
REFERENCE ZERO SCALE CURRENT TO: 0.010 μ A.

MANUAL INSTRUCTIONS:

GENERIC SERIES INFRARAIL PYROMETER.

INFRARAIL SPECIAL NUMBER R720 CONTINUED,

BILL OF MATERIAL

MODULE M1 REFERENCE: DWG.NO.C11194

SYMBOL	PART NO.	DESCRIPTION		
R1	101304011	RESISTOR	1.30 Mohm	METAL FILM 1/4W 1%
R44	101872011	RESISTOR	18.7 Kohm	METAL FILM 1/4W 1%
R54	101103011	RESISTOR	110 Kohm	METAL FILM 1/4W 1%
R45	101502011	RESISTOR	15.0 Kohm	METAL FILM 1/4W 1%
R55	106042011	RESISTOR	60.4 Kohm	METAL FILM 1/4W 1%
R46	101002011	RESISTOR	10.0 Kohm	METAL FILM 1/4W 1%
R56	101003011	RESISTOR	100 Kohm	METAL FILM 1/4W 1%
R47	106341011	RESISTOR	6.34 Kohm	METAL FILM 1/4W 1%
R57	101693011	RESISTOR	169 Kohm	METAL FILM 1/4W 1%
R48	103741011	RESISTOR	3.74 Kohm	METAL FILM 1/4W 1%
R58	102873011	RESISTOR	287 Kohm	METAL FILM 1/4W 1%
R49	102211011	RESISTOR	2.21 Kohm	METAL FILM 1/4W 1%
R59	105113011	RESISTOR	511 Kohm	METAL FILM 1/4W 1%
R50	101241011	RESISTOR	1.24 Kohm	METAL FILM 1/4W 1%
R60	109093011	RESISTOR	909 Kohm	METAL FILM 1/4W 1%
R51	106810011	RESISTOR	681 ohm	METAL FILM 1/4W 1%
R61	101694011	RESISTOR	1.69 Mohm	METAL FILM 1/4W 1%
R52	103570011	RESISTOR	357 ohm	METAL FILM 1/4W 1%
R53	103650011	RESISTOR	365 ohm	METAL FILM 1/4W 1%
R62	103244011	RESISTOR	3.24 Mohm	METAL FILM 1/4W 1%

INFRARAIL SPECIAL NUMBER R720
TEMPERATURE RANGE: 700 TO 1200 DEGREES C
SPECTRUM: 0.70 TO 1.00 MICRONS

TEMPERATURE DEGREES C	SENSOR OUTPUT IN uAMPS	INDICATOR OUTPUT mAMPS
700.0	0.0101	4.000
725.0	0.0151	4.800
750.0	0.0222	5.600
775.0	0.0319	6.400
800.0	0.0452	7.200
825.0	0.0630	8.000
850.0	0.0866	8.800
875.0	0.1175	9.600
900.0	0.1574	10.400
925.0	0.2085	11.200
950.0	0.2731	12.000
975.0	0.3540	12.800
1000.0	0.4544	13.600
1025.0	0.5780	14.400
1050.0	0.7288	15.200
1075.0	0.9115	16.000
1100.0	1.1311	16.800
1125.0	1.3932	17.600
1150.0	1.7041	18.400
1175.0	2.0706	19.200
1200.0	2.5000	20.000

RELATIONSHIPS:

EVALUATED WAVELENGTHS USED:

$$\lambda_1 := .70 \cdot 10^{-6} \quad \lambda_2 := 1.00 \cdot 10^{-6}$$

TEMPERATURE RANGE
 IN DEGREES F:

$$TFLOW := 500 \quad TFHIGH := 1300$$

TEMPERATURE RANGE
 IN DEGREES C:

$$TCLOW := 700 \quad TCHIGH := 1200$$

TARGET EMISSIVITY VARIABLE
 (E = 1.0 FOR CURRENT EXAMPLE)

$$ETARGET := 1.0 \quad \text{SET VARIABLE TO TARGET EMISSIVITY !!}$$

DETECTOR FULL SCALE CURRENT
 AT EMISSIVITY = 1.0:

$$IscFS := 2.500 \quad \text{CURRENT IN MICROAMPS} \quad 2.3888888$$

TEMPERATURE CONVERSION
 CENTIGRADE TO KELVIN:

DISPLAYED TEMPERATURE STEP
 SIZE USED:

$$TFSTEP := 50$$

$$TCSTEP := 25$$

PLANCK CALCULATIONS TO DETERMINE DETECTOR CURRENT OVER TEMPERATURE SPAN
 AND GIVEN WAVELENGTHS:

CREATE TEMPERATURE
 RANGE VARIABLE:

$$TF := TFHIGH, TFHIGH - TFSTEP.. TFLOW$$

$$TK(TF) := \left[(TF - 32) \cdot \frac{5}{9} + 273.15 \right]$$

$$Q(TF, \lambda) := \frac{3.7469147 \cdot 10^{-16}}{\lambda^5 \cdot \exp\left(\frac{1.4388 \cdot 10^{-2}}{\lambda \cdot TK(TF)} - 1\right)}$$

$$S(TF) := \int_{\lambda_1}^{\lambda_2} Q(TF, \lambda) d\lambda$$

$$S(TFHIGH) := \int_{\lambda_1}^{\lambda_2} Q(TFHIGH, \lambda) d\lambda$$

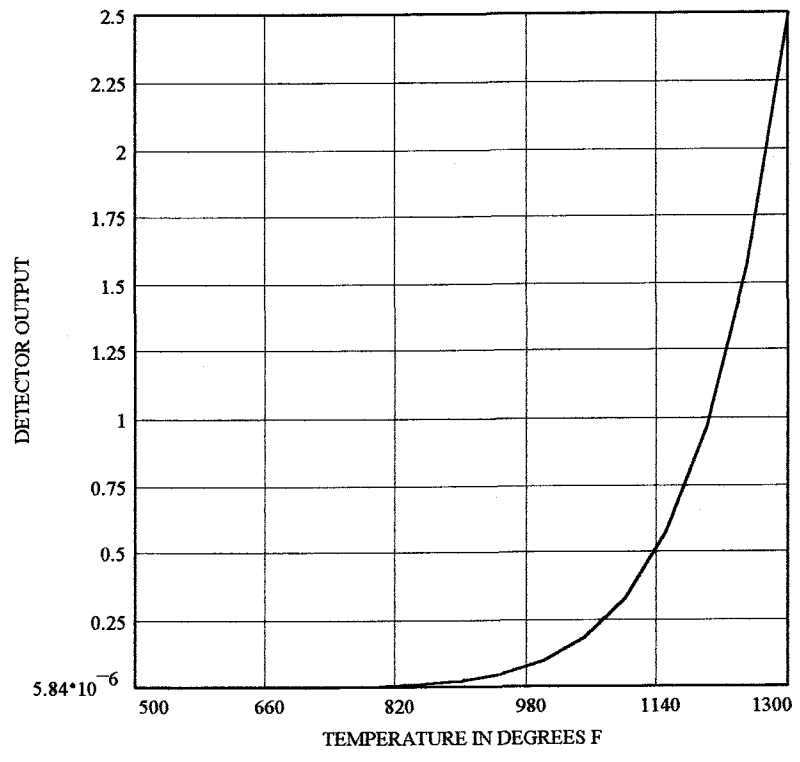
$$R(TF) := \frac{S(TF)}{S(TFHIGH)} \cdot IscFS$$

$$OUTPUT(TF) := R(TF)$$

CONTINUED

TF OUTPUT(TF)

1300	2.5
1250	1.571098
1200	0.961148
1150	0.570994
1100	0.328489
1050	0.182429
1000	0.097453
950	0.049872
900	0.024336
850	0.011262
800	0.004912
750	0.002005
700	0.000759
650	0.000264
600	0.000083
550	0.000024
500	0.000006



$$TC := TCHIGH, TCHIGH - TCSTEP.. TCLOW$$

$$TK(TC) := (TC + 273.15)$$

$$Q(TC, \lambda) := \frac{3.7469147 \cdot 10^{-16}}{\lambda^5 \cdot \exp\left(\frac{1.4388 \cdot 10^{-2}}{\lambda \cdot TK(TC)} - 1\right)}$$
$$S(TC) := \int_{\lambda_1}^{\lambda_2} Q(TC, \lambda) d\lambda$$

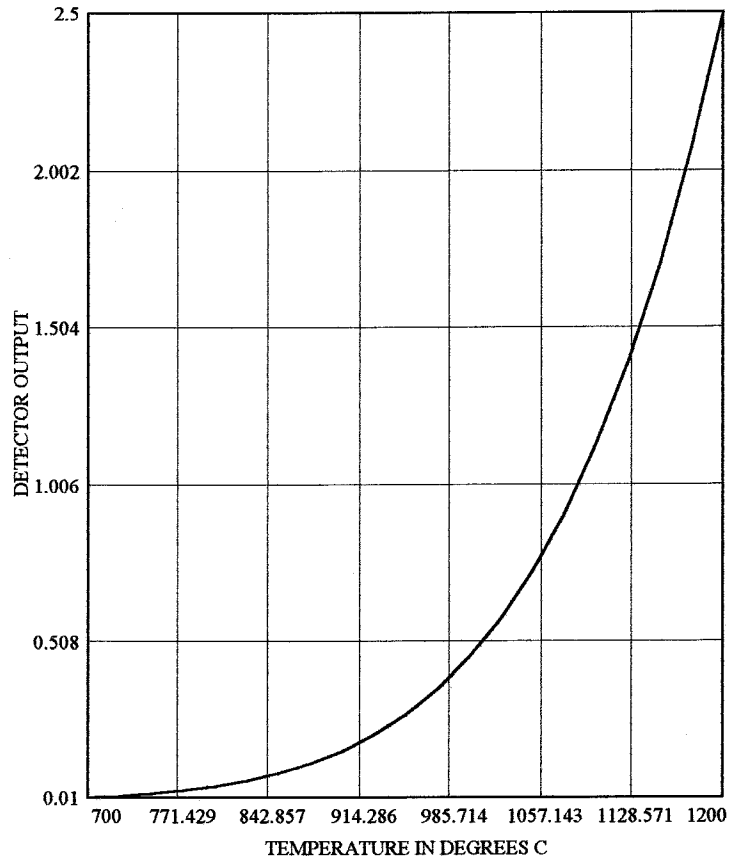
$$S(TCHIGH) := \int_{\lambda_1}^{\lambda_2} Q(TCHIGH, \lambda) d\lambda$$

$$R(TC) := \frac{S(TC)}{S(TCHIGH)} \cdot I_{scFS}$$

$$OUTPUT(TC) := R(TC)$$

TC OUTPUT(TC)

1200	2.5
1175	2.070605
1150	1.704143
1125	1.393234
1100	1.131091
1075	0.911512
1050	0.728857
1025	0.578026
1000	0.454436
975	0.353995
950	0.273075
925	0.208483
900	0.157427
875	0.117492
850	0.086601
825	0.062989
800	0.045168
775	0.031901
750	0.022167
725	0.015136
700	0.010142



Distance / spot	$\frac{460}{0.040}$
10"	0.61"
15"	0.71"
20"	0.83"
25"	0.965"
30"	1.028"

J. L. + A. D
 3-2-98



Purchase Order

PO Number: 3810

7300 North Natchez Avenue Niles, IL 60714
 Phone (847) 967-5151 Fax (847) 647-0070
 http://www.ircon.com

Date: 05-24-00
 Page No: 1

Supplier:
 FOX TOOL CO.
 10430 ARGONNE WOODS DRIVE
 WOODRIDGE, IL 60517
 630-783-8800
 Fax: 630-783-8805

Ship To:
 IRCON, INC.
 7300 N. NATCHEZ AVE.
 NILES, IL 60714
 USA

Joe DeFoie



ATTN: JOE

Order Status

Agent/Buyer	Terms	F.O.B.	Tax Status	Shipped Via
RONALD R DEFOE	0.00%/0/30	SP	Exempt	BEST WAY

LI	Ircon Part No. Description	Delivery Date	Revision	Unit Price & U/M	Quantity	Amount
1	EX-4448 F-HEAD SENSOR SPECIAL FINE THREAD (R720)	06-15-00	A	495.0000	2.	990.00

The purchase order no. plus our part no. must appear on each invoice, packing list, bill of lading, shipping container and all correspondence.

IL Sales & Use Tax No.	TOTAL	990.00
IL 2415-9425		
Authorized Signature		

Copy

SPECIAL AC901 - R720
RUGGEDIZED FIBER OPTIC CABLE - W/FIXED FOCUS
COST BREAK-DOWN FOR ONE UNIT *REIMAGING LENS*

Stock AS OF 5-18-00

<i>↓</i> PART NUMBER	DESCRIPTION	AVERAGE COST FOR ONE PC.
<i>0</i> - 43340-2 <i>SPC</i>	ARMORED CONDUIT 10 FT	\$ 301.47
<i>6</i> - EX-4321 454582 <i>SPC</i>	HOUSING REIMAGING LENS	115.00
<i>5</i> - EX-4317 447862 <i>SPC</i>	ALIGNER, SENSING HEAD	91.00
<i>29</i> - 61073-2 - <i>STANDARD</i>	FIBER OPTIC CABLE, 10 FT	54.00
<i>0</i> - 45408-3	LOCKING NUT	49.00
<i>10</i> - 45411-2	ADAPTER, SPINNING NUT	41.00
"C" STOCK - <i>N/A</i> -	CIRCULAR WAVE WASHER (10 EACH)	21.60
61077-2	LENS (SA SERIES)	15.71
62022-2	PROTECTIVE WINDOW	14.58
45320-2	HEX NUT, MOUNTING (2 EACH)	8.25 16.50
45313-4	GLARE STOP (2 EACH)	4.82 9.64
45322-2	RETAINING RING, SPRING	9.30
45317-2	RETAINING RING	6.50
44597-2	SPACER	6.50
45314-2	APERTURE, THREADED	6.30
47598-2	LABEL, CABLE	.87
41083-2	RETAINING RING (2 EACH)	.43 .86
43250-2	"O" RING, VITON (2 EACH)	.41 .82
47596-2	LABEL, SENSING HEAD	.79
43339-2	"O" RING, VITON (2 EACH)	.17 .34
43338-2	"O" RING, VITON (2 EACH)	.14 .28
43266-2	CAPLUG (2 EACH)	.02 .04
200406640 (4)	4-40x 3/16 SOCKET CAP SBREW	
TOTAL		\$ 762.17

COST DOES NOT INCLUDE ENGINEERING TIME FOR ASSEMBLY.

433412 - 20ft Hose
433402 - 10ft Hose

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SCHEDULED SHIPPING WEEK MONTH/DAY/YEAR
ENDING 08/15/98

OUR ORDER NO. ORDER DATE MONTH/DAY/YEAR
FD 307991/00 07/06/98

YOUR ORDER NO.
D-6352

TERMS NET 30
X OTHER NET 60

F.O.B. X NILES, ILLINOIS

CODE 726 .00

VIA MSAS PPD. X COLL.

SPECIAL SHIPPING INSTRUCTIONS

SOLD TO CUSTOMER NO. 008241

IRCON GMBH
POSTFACH 1361, D-65221
TAUNUSSTEIN, GRILLPARZERSTR 40
GERMANY

SHIPPING ADDRESS TAX CODE
NO TAX

INTROPA
SPEDITIONSGESELLSCHAFT GMBH
FRANKFURT AIRPORT
ZUR VERFUEGUNG IRCONGMBH

7/07/98

PAGE 1

CHANGED ORDER

LINE NO.	PART NO.	QTY.	DESCRIPTION	UNIT MEAS	DISCOUNT %	PRICE EACH U.S. DOLLAR XXXXXXXXX	AMOUNT U.S. DOLLAR XXXXXXXXX
01		1	INFRARAIL SENSING HEAD MODEL DNF99-99C SERIAL NBR 002579 CABLE(S) 4 MET. EA (4 MET. EA INCLUDED IN ABOVE) ***** * SPECIAL Z999 ***** !!!!!!!!!!WARNING!!!!!!!!!! ** SPL # TO BE DETERMINED ** ** SEE ENGINEERING DEPT. **	EA		1865.75	1865.75
02	L12153	1	SS-14 SIGHT TUBE W/GUARD S.S.	EA		330.50	330.50
			SUB TOTALS				2196.25
			GRAND TOTAL				2196.25

Special Head with Rugged Fiber optic Fix Focus lens, and calibrated for special Temp range 200-1200C

BILLINGS IN D.M. on Invoice

RAB 8/2

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

Ship To: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

ORIGINAL

Part No. 020172 Rev C 12/95

Purchase Order

JOE "THE LAKNER"



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Fax 847-647-0070



001606/773-235-5283

PO NUMBER	PAGE	P/O DATE	ORDER TYPE	CHANGE/CANCEL
85235-00	01	07/30/98	NORMAL	ORIGINAL 07/30/98

ORDERED FROM
FOX TOOL
1665 N. MILWAUKEE AVENUE
CHICAGO IL 60647

SHIP TO
IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714

BUYER	TERMS	ACKNOWLEDGE	CONFIRM	FOB	SHIP VIA	COL/PPD
ON DEFOE, P/MGR.	NET 30	YES	YES	SHIPPING PT	BEST WAY	PPD

LINE NO.	QTY. ORDERED	BLANKET TYPE	U/M	OUR ITEM NUMBER DESCRIPTION/COMMENTS	YOUR ITEM NUMBER	PRICE/UNIT REQUESTED DATE	EXTENDED PRICE	CHANGE CANCEL
1	2	EA		EX-4448 SENIOR HEAD COMPLETE PER PRINT, REV. A <i>SPECIAL R720</i>		300.00 08/10/98	600.00	329

ILLINOIS PERMIT #2415-9425

TOTAL EXTENDED PRICE 600.00

NOT FOR RESALE

COMMENTS

CONF TO TED 7-30

FOR RESALE
PURCHASE ORDER NUMBER AND IRCON PART NUMBER, (IF STATED)
MUST APPEAR ON ALL ACKNOWLEDGMENTS, PACKING SLIPS AND INVOICES.

THIS ORDER MUST BE ACKNOWLEDGED WITHIN 7 DAYS.
THIS ORDER ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN
ON THIS AND THE REVERSE SIDE.

INTERNAL USE

Part No. 020192 Rev H 10/96
R Depe
ORDERED BY CUSTOMER



QUOTE & ORDER !! PURCHASE REQUISITION

Supplier

Date 7-16-98

FOX TOOL

P.O. # _____

Requisitioner J. LAKNER

Purpose/Reason R720 RUGGEDIZED

Attn _____

Fiber Optic F HEAD

Phone _____

Date needed 8-6-98

Route to J. LAKNER

Material Safety Data Information:

New chemical MSDS received on _____

for sample only

routine use

Previously purchased chemical: Active Index No. _____

Qty	U/M	Part No.	Rev. Level	Description	Price Ea	Total	Acct or W/O No.
2		EX-4448 A		SENSOR F-HEAD RUGGEDIZED Fiber Optic...			
				Note THREAD design change for F-head to accept Fiber optic			

Confirming to _____

Approval (under \$100 - Authorized Requisitioner) J. Lakner

Total \$ _____

(\$100 - \$5000 - Department Manager) _____

(over \$5000 - General Manager) _____

W.O.#
6642

BOM Number : DN-HO#5420 - IRCON INFRARAIL IRT SO-LI: 73876*4

Level	Part Number	Description	Quantity	UM	Alt.	MB	X	ECO No.	ECO Date	StartUse	End Use.
1	DN1DNF		1.0000	EA		M	P				
1	D11195-R720	SH ASSEMBLY (F-SERIES) (IN	1.0000	EA		M	P				
2	EX-4448	F-HEAD SENSOR	1.0000	EA		M	P	3709	05-17-96		
2	640362	FILTER RG715	1.0000	EA		B		3709	05-17-96		
2	990100034	ADHESIVE OPTICAL CEMENT S	1.0000	EA		B		3709	05-17-96		
2	640462	FILTER BANDPASS 0.7-1.0U	1.0000	EA		B		3709	05-17-96		
2	990100009	ADHESIVE CYANOACYLATE BLK	1.0000	EA		B		3709	05-17-96		
2	C11208	SH DETECTOR ASSEMBLY (F-S	1.0000	EA		M	P	3709	05-17-96		
3	L13353	SH DETECTOR ASSY F-SERIES	1.0000	EA		M	P				
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B					
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B					
4	590292	DET. VTB 6061 VACTEC Z/L	1.0000	EA		B					
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B					
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B					
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B					
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B					
4	501822	PCB DETECTOR Z/L MOD2	1.0000	EA		B					
4	990100004	EPOXY HB FULLER FE 7004	1.0000	EA		B					
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B					
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B					
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B		3709	05-17-96		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B		3709	05-17-96		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B		3709	05-17-96		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B		3709	05-17-96		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B		3709	05-17-96		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B		3709	05-17-96		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B		3709	05-17-96		
2	474772	LABEL GROUND WARNING	1.0000	EA		B		3709	05-17-96		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B		3709	05-17-96		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B		3709	05-17-96		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B		3709	05-17-96		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B					
2	D11195/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B		3709	05-17-96		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B		3709	05-17-96		
2	T-D11195-2	DETERMINE IF CABLE IS REQ	0.0000	EA		B		3709	05-17-96		

F-HEAD
454152

R720
Sensor Only

W.O.#
6642

BOM Number : DN-HO#5420 - IRCON INFRARAIL IRT SO-LI: 73876*4

Level	Part Number	Description	Quantity	UM	Alt	MB	X	ECO No.	ECO Date	Start Use	End Use
1	DNIDNF		1.0000	EA		M	P				
1	D11195-R720	SH ASSEMBLY (F-SERIES) (IN	1.0000	EA		M	P				
2	EX-4448	F-HEAD SENSOR	1.0000	EA		M	P	3709	05-17-96		
2	640362	FILTER RG715	1.0000	EA		B		3709	05-17-96		
2	990100034	ADHESIVE OPTICAL CEMENT S	1.0000	EA		B		3709	05-17-96		
2	640462	FILTER BANDPASS 0.7-1.0U	1.0000	EA		B		3709	05-17-96		
2	990100009	ADHESIVE CYANOACRYLATE BLK	1.0000	EA		B		3709	05-17-96		
2	C11208	SH DETECTOR ASSEMBLY (F-S	1.0000	EA		M	P	3709	05-17-96		
3	L13353	SH DETECTOR ASSY F-SERIES	1.0000	EA		M	P				
4	431452	DET. LOCATOR Z HEAD	1.0000	EA		B					
4	451382	LOCATING PIN FOR Z1	1.0000	EA		B					
4	590292	DET. VTB 6061 VACTEC Z/L	1.0000	EA		B					
4	560372	CABLE PVC 1 COND SHIELD 2	2.5000	IN		B					
4	430292	CONN. GASKET 2000 SERIES	1.0000	EA		B					
4	575892	CONN. CIRC 3 RECPT 10SL-3	1.0000	EA		B					
4	490042	SPRING DETECTOR RETAINER	1.0000	EA		B					
4	501822	PCB DETECTOR Z/L MOD2	1.0000	EA		B					
4	990100004	EPOXY HB FULLER FE 7004	1.0000	EA		B					
4	312430100	WIRE 24AWG BARE SOLID	1.0000	IN		B					
4	3208I1000	BLACK HEAT SHRINK TUBING	1.0000	IN		B					
2	220403200	WASHER #4 LOCK SPLIT RING	4.0000	EA		B		3709	05-17-96		
2	200412440	SCREW #4-40 X 3/8 FIL SLO	4.0000	EA		B		3709	05-17-96		
2	454152	SCREW, ADJUSTMENT,	1.0000	EA		B		3709	05-17-96		
2	433372	O RING 3/32 X 7/32 X 1/16	1.0000	EA		B		3709	05-17-96		
2	20100874F	SCREW #10-32 X 1/4 SOCKET	1.0000	EA		B		3709	05-17-96		
2	220602200	WASHER #6 LOCK EXT TOOTH	1.0000	EA		B		3709	05-17-96		
2	200606040	SCREW #6-32 X 3/16 PH SLO	1.0000	EA		B		3709	05-17-96		
2	474772	LABEL GROUND WARNING	1.0000	EA		B		3709	05-17-96		
2	477142	LABEL, SERIAL NUMBER, SEN	1.0000	EA		B		3709	05-17-96		
2	454242	NUT RETAINING S.S. E/F-HE	1.0000	EA		B		3709	05-17-96		
2	T-D11195-1	SELECT FIBER OPTIC LIGHT	0.0000	EA		B		3709	05-17-96		
2	T-D11195-3	F-SERIES (GT) FIB OPT	0.0000	EA		B					
2	D11195/01	SEE EXTENDED DESCRIPTION	0.0000	EA		M					
2	999900013	CAP PLUG #SC-1-1/4	1.0000	EA		B		3709	05-17-96		
2	990100028	SEALANT RTV SILICONE BLAC	1.0000	EA		B		3709	05-17-96		
2	T-D11195-2	DETERMINE IF CABLE IS REQ	0.0000	EA		B		3709	05-17-96		

R720
Sensor Only

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

SOLD TO _____ CUSTOMER NO. 100426

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

REQUEST DATE (MM-DD-YY) 05-17-00 PROMISE DATE (MM-DD-YY) 05-17-00

OUR ORDER NO. 73876 ORDER DATE (MM-DD-YY) 04-20-00

YOUR ORDER NO. 200040270

TERMS 0.00/0/180

SHIPPING ADDRESS _____ TAX CODE _____

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

CODE 1001 (100.00)

VIA MSAS

SPECIAL SHIPPING INSTRUCTIONS SALZGITTER

CHANGE HOUSING TO EX-4448

LI	PART NO.	DESCRIPTION	QTY	DSCNT%	UNIT PRICE	AMOUNT
1	DN-HO#5118	DN_DNFXX-XXX IRCON INFRARAIL IRT SENSING HEAD ONLY <i>done</i> Consists of the following: 1.0000 - INFRARAIL HEAD ONLY 1.0000 - DN- F SERIES 1.0000 - NO REIMAGING LENS 1.0000 - NO FIBER OPTIC LIGTH GUIDE	1	0.00	462.00	462.00
2	L120FB1	DN_DNFXX-XXX FIB OPT RUGGED ASSY 10' 1 <i>CHANGE HARDWARE (A.D.) done</i>	1	0.00	1050.00	1050.00
3	SS-14	STAINLESS SIGHT TUBE, 14" WITH SIGHT GUARD	1	0.00	278.25	278.25
4	DN-HO#5420	DN_DNFXX-XXX IRCON INFRARAIL IRT SENSING HEAD ONLY <i>w.o # 6642</i>	1	0.00	0.00	0.00
<i>Reds Special R 720 Type F Head with regular fiber optic</i>						GRAND TOTAL

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

SHIP TO: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

IF TAX EXEMPT, PLEASE PROVIDE COPY OF EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

RAH-5112

Acknowledgment



IRCON, INC.
7300 N. Natchez Ave.
Niles, IL 60714 USA

Phone 847-967-5151
Toll Free 800-323-7660
Fax 847-647-0948

REQUEST DATE (MM-DD-YY)

05-17-00

PROMISE DATE (MM-DD-YY)

05-17-00

OUR ORDER NO.

73876

ORDER DATE (MM-DD-YY)

04-20-00

YOUR ORDER NO.

200040270

TERMS

0.00/0/180

F.O.B.

CODE

1001 (100.00)

VIA

MSAS

SPECIAL SHIPPING INSTRUCTIONS

SALZGITTER

SOLD TO

CUSTOMER NO.

100426

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

SHIPPING ADDRESS

TAX CODE

IRCON B.V.
DATABANKWEG 6 C
3821 AL AMERSFOORT

THE NETHERLANDS

LI	PART NO.	DESCRIPTION	QTY	DSCNT%	UNIT PRICE	AMOUNT
4	DN-HO#5420 (CONTINUED)	Consists of the following: 1.0000 - INFRARAIL HEAD ONLY 1.0000 - DN- F SERIES 1.0000 - NO REIMAGING LENS 1.0000 - NO FIBER OPTIC LIGTH GUIDE DN_DNFXX-XXX				
5	P1-F1	D/30 REIMAGING LENS BUILT WITH P/N454582	2	0.00	0.00	0.00
6	AAQ-1	AIR PURGE W/QUICK DISC. (FIBER OPTIC) <i>1 fine thread f/o. 2 reimaging housings 2 heads with fine thread</i>	2	0.00	183.75	367.50
GRAND TOTAL						

THIS ORDER IS ACCEPTED SUBJECT TO TERMS AND CONDITIONS SHOWN ON THIS AND THE REVERSE SIDE

SHIP TO: IRCON, INC.
7300 N. NATCHEZ AVE.
NILES, IL 60714 USA

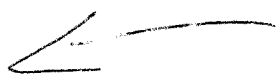
IF TAX EXEMPT, PLEASE PROVIDE COPY OF
EXEMPTION OR DIRECT PAYMENT CERTIFICATE.

**DRAWING (S) TOO LARGE
TO SCAN.**

**TO VIEW THE ORIGINAL
DESIGN,**

**A REQUEST TO VIEW
PHYSICAL FILE
IS YOUR NEXT OPTION.**

455702



DO NOT USE
THIS FOR

LOCKING NUT
COARSE THREAD

THIS
SPECIAL

Distance / spot
10" 0.8
15" 1.0
20" 1.2
25" 1.375
30" 1.6

460 0.040"
0.61"
0.71"
0.83"
0.965"
1.028"

J. T. + A. D

3-2-98



Engineering Special or System Request

Page ___ of ___

From: V. LAPPÉ

Date: Sept 13

To: J. LAKNER

Customer: Jmc

Description of Request: INFRARAIL. TYPE F.

Base standard model or series:

RANGE 800-1300°C, STD RANGE.
I NEED RUGGED F/O AND THE
FIXED FOCUS LENS.

1 Unit

Details of specific approval: _____

Ruggedized F.O. 10' with Fixed Focus
0.75" @ 15" OK. Adder ~~2200~~²⁹⁰⁰
Please allow ~ 6-8 wks Delivery

Specific Exceptions: _____

Price: See Above
(adder to standard)

Delivery: 6-8 wks
(adder to standard)

Approved by: [Signature]

Date: 9-15-2000