

7\$%/(2) &217(176

,QWURGXFWLRQ

' 7ROHUDQFLQJ DQG \$QQRWDWLRQ

' 7ROHUDQFLQJ \$QQRWDWLRQ :RUNEHQFK

6WDQGDUG ,FRQV

)XQFWLRQDO 7ROHUDQFLQJ

9LHZ /D\RXW

\$QQRWDWLRQ

9LHZ

7RXFK

* ' 7 5HYLHZ

*HRPHWULF &KDUDFWHWLVWLF 6\PERO

ORGLI\LQJ 6\PEROV

2WKHU 6\PEROV

9LHZV

9LHZ &UHDWLRQ

2IIVHW 6HFWLRQ 9LHZ 6HFWLRQ &XW

\$OLJQH 6HFWLRQ 9LHZ 6HFWLRQ &XW

2ULHQWDWLRQ

7UDQVIHU

8VLQJ \$[LV 6\VWHPV

3URSHUWLHV

&KDQJLQJ 6XSSRUW

'DWXPV

3ODQDU 'DWXPV

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'DWXP 5HIHUHQFH)UDPHV

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'DWXP 7DUJHWV

3RLQWV

7ROHUDQFLQJ \$GYLVRU

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/LQH V

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0DQXDOO\

\$UHDV

7ROHUDQFLQJ \$GYLVRU

0DQXDOO\

'DWXP \$[HV DQG &HQWHU 3ODQH V

7ROHUDQFLQJ \$GYLVRU

0DQXDOO\

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&UHDWLQJ 'LPHQVLRQV
 / H Q J W K ' L V W D Q F H
$ Q J O H
5 D G L X V
' L D P H W H U
& R R U G L Q D W H
& X P X O D W H G
6 W D F N H G
' L P H Q V L R Q V I R U F X U Y H V
* H Q H U D W L Y H ' L P H Q V L R Q V
6 H W X S 3 D U D P H W H U V
' L P H Q V L R Q / L Q H V
7 R O H U D Q F H
1 X P H U L F D O ' L V S O D \
0 R G L I \ L Q J ' L P H Q V L R Q V
2 E M H F W 3 U R S H U W L H V
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3 U R S H U W L H V
3 R V L W L R Q L Q J
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&UHDWLQJ 'LPHQVLRQV
0 R G L I \ L Q J ' L P H Q V L R Q V
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3 U R S D J D W L R Q 6 H O H F W L R Q
3 U R S D J D W L R Q R S W L R Q V
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) R U P & R Q W U R O V
) O D W Q H V V
7 R O H U D Q F L Q J $ G Y L V R U
0 D Q X D O O \
6 W U D L J K W Q H V V
7 R O H U D Q F L Q J $ G Y L V R U
0 D Q X D O O \
& L U F X O D U L W \
7 R O H U D Q F L Q J $ G Y L V R U
0 D Q X D O O \
& \ O L Q G U L F L W \
7 R O H U D Q F L Q J $ G Y L V R U
0 D Q X D O O \
2 U L H Q W D W L R Q & R Q W U R O V
3 H U S H Q G L F X O D U L W \
7 R O H U D Q F L Q J $ G Y L V R U
0 D Q X D O O \
$ Q J X O D U L W \
7 R O H U D Q F L Q J $ G Y L V R U
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3RVLWLRQDO /LQN
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)ODJ 1RWHV
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7H[W
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6XUIDFH 7H[WXUH

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7KUHDG 5HSUHVHQWDWLRQ &UHDWLRQ
*HRPHWU\ &RQQHFWLRQ 0DQDJHPHQW
\$QQRWDWLRQ 3RLQWLQJ

9LVXDOLJDWLRQ
+LGH 6KRZ LQ '
' \$QQRWDWLRQ 4XHU\
)LOWHULQJ
0LUURU

3 U R E O H P V
 3 U R E O H P
 3 U R E O H P
 3 U R E O H P
 3 U R E O H P

\$ S S H Q G L [\$
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 \$SS 3 U H I H U H Q F H V ' 0 R G H O L Q J 0 H F K D Q L F D O 6 \ V W
 \$ G P L Q L V W U D W L R Q

, QWURGXFWLRQ

&\$7,\$ 9HUVLRQ DQFIRQHDQG \$QQRWDWLRQ

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' 7ROHUDQFLQJ DQG \$QQRWDWLRQ

' WROHUDQFLQJ DQG DQQRWDWLRQ \$DUMWH QGR SGHRIG QFWV
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FUHDWHG 0DQ\ FRPSDQLHV KDYH DLSUHN QMGURQ RQQWH UHV
EXW ILQG LW GLILFXOW WR DFFRVLV RQ'HWRFOW URD QFR RQ
KHOS PDNH WKH WUDQVLWLRQ D UHDOLW\

7R HIIHFWLYHO\ LPSOHPHQW WKHI DFRLO D UL Q LWKL WFRXUVH
IXQGDPHQWDOV RQ VILFRPLQW UL Q GG WRHO, MU DQ FQRW WKH LQWHQ
WKLW FRXUVH WR WHDFK *' 7 7KH LW KLLQ WRKHH IDQFLWLRQDQDFO
WKH ZRUNEHQFK EXW LW ZLOO QFHODQDODQDQZ RWR QWR DL QSHU

7ROHUDQFLQJ \$GYLVRU

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FUHDWH D IODWQHVV WROHUDQFH IRU WKLV IDFH



<RXU ZLQGRZ VKRXOG DSSHU DV VORZHU V RKXW7RKH URDQFLR
DUH QRW YDOLG IRU D VLQJOH VZUODFBH QQRXWKHGHLOWLD
H[HUFLVH

6 H O H Unit Basis M D E

+H U H \ R X F D Q V S H F L I \ D U H I L Q H P R I Q W K M R V X H U I D Q F H D C R U Q J
W R W D O Y D U L D W L R Q R U \ R X F D Q Z X O I D V S H F L L W D V H U H I L Q E P
W K D W I R U D E \ V T X D U H D U R I D O W E K H P D [L P X P Y D U L

6 H O H Applied Unit Basis Refinement Tolerance R S W L R Q V W K H Q F K D Q J H
Numerical value R I W K H U H I L Q H P R I Q W 1 W R D Q Q . V H C H F W
W R O H U D Q F H D S S H D U V

3RVLWLRQ WKH WROHUD\ QFH D\W D\WRZQ EHKORZ WKH PD[L PXP
HQWLUH VXUIDFH FDQ RQO\ EH PD[L PXPVY D\QD W\KRQ HR IFD
LQFKHV ZLWKLQ D LQFK VTXDUH DUHD

&DXWLRQ VKRXOG EH JLYHQ IRU D\XQ LYD LEIDWL V\RW REHFUDXQ/H
ERZ LQ WKH ERWWRP RI WKH SDUEX WRK\DGHPH KWJD XQLWDE
DFURVV WKH HQWLUH VXUIDFH

6DYH DQG FORVH WKH GRFXPHQW

0DQXDOO\

1RZ \RX ZLOO FUHDWH WKH VDPH JHRPHWULFDO WROHU
HH
2SHQ WKH RULJLQDOLVPHQW DJDLQ

6HOHFWRPHWULFDO ZRQUDQVHLV ORFDWHGHFWWRQ
S@Ø"€I0DTA ôpí À @p €•đ@p €

6WUDLJKWQHVV

6WUDLJKWQHVV WROHUDQFHV FDR WKHDSLOLRG WHRQWXHU
IHDWXUHV RI VL]H

,I DSSOLHG WR D VXUIDFH LW FVRQWURKHV VXRZ DFWHUPXLVWV
WR PHHW WKH GHVLJQ UHTXLUHPHQWV D YHUVROHQLVW OZHLV
WROHUDQFH]RQH VSHFLILHG E\ HVGRE\SWKB OVRHOHO DQHM V

,I DSSOLHG WR DQ D[LV RU FHRWVWUJGLQW RRODFURDQ GWR
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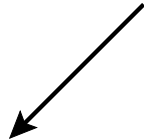
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SODQH PXVW H[LHWDZEMK RQHWKSHDFROHOG SEQDQZRV SWKUDW D
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2SHQ WSH 6WUDLJKWQHVV YLHZV DQG WZR GLPHQVLR
H[LVW

7ROHUDQFLQJ \$GYLVRU

\$V VWDWHG EHIRUH WKH 7ROHUDQFLQJ \$GYLVRU DCHWRXU
FUHDWHG

6HOHFWRQH DQFLQJL \$GOLWRKHQ VHOHFW WKH F\OLQGULF
EHORZ <RX ZLOO FUHDWH D VWUDLJKWQHVVWRDHHWDW
VL]H VR WKH WROHUDQFH ZLOOWKH DSSODFH WR WKH OL
FHQWHUOLQH



7 K~~Static~~ *Tbaniq* *Adio*

ZLQGRZ H[SDQGV DQG WKH RSWLRQV WK
WKH FXUUHQW VHOHFWLRQ KDYH EHHQ ILOWHUHG DZD\

6 HOHF6W WDKL KWQHVV 6 SFRQILF *Qdual* *Sp* *fcain*
ZLQGRZ DSSHDUV

& KDQJ *Num* *Kcal* YDOXH WR OKDQKHMORHFW DQFH DSSHDUV DC
7ROHUDQFLQJ \$GYLVRU UHPDLQV DFWLYH

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IHDWXUH RI VL]H

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&KDQJ NumeKda YDOXH WRKH GLDPHWHU V\PERO DXWRPDWLFDC
IHDWXUH FRQWURO IUDPH VLQFH @ \$W, \$ONHURZQFW KDOHLW\$ QV
PDWHULDO FRQGLWLRQ LFRQV DUH QRZ DYDLODEOH

6HOHFWD [WRKXP 0DWHULDOL & RQ GLWLRQDOORZV IRU H[WUD W
ZKLOH VWLOO HQVXULQJ WKH IXQFWLRQ RI DVVHPEO\

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WROHUDQFH DQG KDV D SRVLWLRQRYHVLW KHWR RLOHUDQFH V
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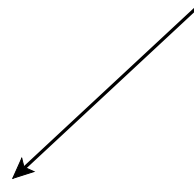
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WR *DAb* D

6HOHF6W WKLJKWQHVV 6SHRQILF *DAb* *Spfcain*
ZLQGRZ DSSHUV

&KDQJ *Num* *Kal* YDOXH WR DOQLP *HOHFW* MUKLDO &RQGLW
LFRQ WIKQ FOL\$N/PDOO PHVVDJH DSSHUV LQ WKH ORZ
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IRU WKH WROHUDQFH JRQH PXVWGEWR *GBIS* *GB* *GB* HVLQFH LW

6HOHFW DefindonWEnt ILHOG DQG VHOHFW WKH HGJH VKRZQ EH



6HOKFW RUPDOO\ WKH WRDWBQFZLWIKOWEHGLPHQVLRQ
3RVLWLRQ WKH WROHUDQFH VR WKDW LW LV EHQHDWK WKH

6HOHFW WKH WROHUDQFH WKHQ SUHOVRWKLDPKROG DWXWK
HQQ RI WKH OHBBLDQEXHCHIFWP WKH FRQWFKMXDO PHQ
OHDGHU LV UHPRYHG

&KDQJH WKH GLPHQZLRQVWVHDGFRBYMRWKH GLPHQVLRQ EHC
ERWWRP H[WHQVLRQWROHUDQFH IROORZV

\$ VWUDLJKWQHVV WROHUDQFH FDQ DOVR EH DSSOLHG WR D

2SHQ W7\$H 6WUDLJKWQHVVGRBQRWQWZ/LOO GHILQH VRPH
VWUDLJKWQHVV WROHUDQFHV WQFH WHILQH WKHP ZLWK X

6HOHFWR QWUHQFLQJL\$BQLVRSW *Tbanig Adio* ZLQGRZ
DSSHUV

6HOHFW WKH WRS IDFH RI 6WUHQSDUWQHVKHCSFKRQIRVH WLRQ
7K *PricalSpicfain* ZLQGRZ DSSHUV \$ YLHZ ZDV DXWRPDWL
WKHUH ZHUH QRQH EHIRUHKDQG

&KDQJN *Merka* YDOXH WR DQ *Bas* VDHFWHWRKSWLRQV KHUH D
YHU\ VLPLODU WR WKH IODWQHVRQRSHVHQW K H F H L S Q W L K R Q W

7K *Bas* WDE VSHFLILHV D UHILQHPPHQW WRS *DUHQ* D *ORQ* D
ZLWK D WRWDO YDULDWLRQ R *WVHW* *RDQZE* *OXWIS* *EFEL* *ILW* *WHO*

0DQXDOO\

1RZ \RX ZLOO PDQXDOO\ FUHDWH WKH VDPH JHRPHWULFDO

2SHQ WKH RULJLQDULJLWDFW DJDLQ WKHQ VHOHFW W

*HRPHWULFDO ZRQUDQFH

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GenicalTbaniig ZLQGRZ DSSHUV

&KDQJH WKH6WWDPRDKWIRWV WLV D GLDPHWHU V\PE
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\$GYLVRU GRHV

6HOHF Edit To *GenicalTbaniig* HILHOG DQG FOLFN WKH EODFN DUURZ RQ
VKRZQ EHSRZQX ZLWK YDULRXV V\PEROV DSSHUV



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.H\ LQ WKHQ VHOHFW WKH EODFN DQDZFRQRWKHWKQ
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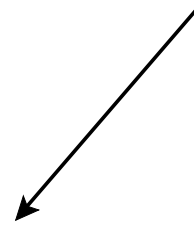
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G H I L Q H G D Q G V W H D W H K W Q E D Q H R G W R O H R W D Q F H X G L U H F W L F

' R X E O H V H O H F W W K H O D V W K W L S D J K W Q H V Z L W R O Z H U D Q F H
D S S H D U V

6 HOHF Defind On WEent ILHOG DW WKHZE QWRZ D QG S KFN WKH I
VKRZQ E HORZ O W K Q R V G H FWR GFHL Q HU W K W L R R O W U Q W R
EH HGLWHG DIWHU LW LV FUHDWHG



&ORVH WKH GRFXPHQW