7$%/(2) &217(176

,QWURGXFWLRQ
0DQXDO)RUPDW
(OHFWULFDO 5HVHUYDWLRQV

(TXLSPHQW 5HVHUYDWLRQV

3DWKZD\ 5HVHUYDWLRQV

$GYDQFHG 5HVHUYDWLRQV

5HVHUYDWLRQ $QDO\VLV
&ODVK
6HFWLRQLQJ
’LVWDQFH
’ $QQRWDWLRQV
’ $QQRWDWHG 9LHZV

3URSHUWLHV
3UREOHP
3UREOHP

$SSHQGL[$
,QIUDVWUXFWXUH 3DUW ,QIUDVWUXFWXUH
,QIUDVWUXFWXUH 3DUW ,QIUDVWUXFWXUH
’LJLWDO 0RFNXS *HQHUDO
’LJLWDO 0RFNXS ’08 1DYLJDWRU
’LJLWDO 0RFNXS ’08 0DUNHU
’LJLWDO 0RFNXS ’08 6HFWLRQLQJ
’LJLWDO 0RFNXS ’08 6SDFH $QDO\VLV ’08 &ODVK
’LJLWDO 0RFNXS ’08 6SDFH $QDO\VLV ’08 ’LVWDQFH

, Q W U R G X F W L R Q

0DQXDO)RUPDW

,W LV LPSRUWDQW WR XQGHUVWDQG WKH HFWDLQ
7KLV PDQXDO LV GHVLJQHG WR EH XVHG UDORQJZLGH WKHHGL
ORW RI UHDGLQJ DV ZHOO LQ RUGHU WR IXOHOXHUWDLQG
ERRN ZLOO OLVW VWHSV IRU \RX WRRSDWHWH\ DVRRLQIRUW
\RX KDYH MXVW GRQH DQG ZKDW \RXXWWHSVLQDUHDQ\EWR
DQG WKH LQIRUPDWLRQ WKDW IROORZ WKHVWHSVDSVHRU VR
italics UHIHUV WR D PHVVDJH &$7,$ SURYLGHVXWKLGWRZLQPHXXV
SRS XS ZLQGRZV DQG RWKHU PHVVDJHV

$Q H[DPSOH RI D VWHS DQG LWV H[SODQDWLRQ WKHVH VOKRZHQ EHO
EH WKHUH

6HOHFW D ORFDWLRQ WR7KVLKVHVSHFLFLWLRV WKHHRWLKHQ HQG SH
<RX ZLOO FRQWLQXH VSHFLI\LQJ ORFDWLRQVHLQ,WKUVKHRX OWR DSS
VLPLODU WR WKH GLDJUDP VKRZQ EHORZ

$V \RX FDQ VHH WKH GHVLUHG DFWLRQKEOWHQWVDSSHZDLWKLQKE
LQIRUPDWLRQ IROORZLQJ WKH VWHSVKHISODQGZKHUHW\WKDWHV
JRLQJ QH[W ,W LV LPSRUWDQW IRUKHROS WR UHXQGHUVWLQDQ
&$7,$ 9HUVLRQ

$OVR \RX ZLOO ILQG WKDW WKH H/DHWHULVH[WEXLVOHGVXSRWQHWKH
\RX NQRZ KRZ WR GR FHUWDLQ VWHSVLHKLHKHDYHHVH,QFRX
QRW TXLWH SLFN XS ZKDW \RX QHHGZGOWORSNRRZEO\RZLDWKHW
UHYLHZ LW VHYHUDO WLPHV EHIRUHHPWLRQV RQ$WRRXSHUPJRUHH
WKURXJK WKH PDQXDO LW H[SHFWRUHWKDXEHN DEHOWRUQRL
PRUH ZLWK IHZHU VWHSV (YHQWXDOO\RXURUHSHH[SHRWHGW
ZLWKRXW DQ\ VWHSV

3DWKZD\ 5HVHUYDWLRQV

3DWKZD\ UHVHUYDWLRQV DUH QHFHVVDU\ IRU WHRQYHXULRQ W
EHWZHHQ HTXLSPHQW WKDW ZLOOZ EH LQVWDYDOWLRQW EDQD
IRU DQ\ W\SH RI SDUW 7KH\ DUH LHQHURXOVL QJVHUG WRXE LHQJH

2SHQ 3DWKZD\ 5HVHUYDWLRQV Pathway Reservation GLUHFWRU\
7KH PRGHO DSSHDUV DV VKRZQ

7KLV PRGHO KDV DOUHDG\ EHHQ VWQHWHGFWRU\ RIXNH7WKVH
(TXLSPHQW 5HVHUYDWLRQ H[HUFLVHOWKDXWO\RXSDWXVWDFRPS
UHVHUYDWLRQV EHWZHHQ WKH HTXLSPHQW DQG VXSSRUW

%H VXUH WKDW \RX DUH LQ WKH $VVHPEO\ 'HVLJQ ZRUNE

6HOHFWHZW3DUWRQ DQG Pathway Reservation IURP WKH WUHH *Part Number* ZLQGRZ DSSHDUV

.H\ LQ 3DWKNewKH Part Number DQG VKOHFW

7KH *New Part: Origin Point* ZLQGRZ DSSHDUV

6HOHFW &RX ZLOO MXVW XVH WKH JOREDOHRQHZLSDUWLQWSRLQW
LQ WKH VSHFLILFDWLRQ WUHH

'RXEOH VHOHFW WKH Path1 GRFXPHQW DV VKRZQ DERYH WR VKRZ LWV DFWXDOOH W
VZLWFK \RX WR D SDUW OHYHO ZRUNLEVHQFK &RX KLQH WKH JFRW
WKH DVVHPEO\

6ZLWFK WR WKH *HQHUDWLYH &RX ZLOO HVLJQ XVIRQJ ZLUQHK
FUHDWH WKH SDWKV

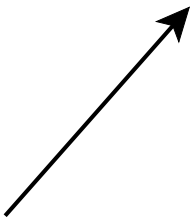
+LGH WKH UHIHUHQFH &RX ZLOO RIRWKHHSDUW WKH UHIHUHQFH S

6HOHFW 7KH VSOLQH VKRXOG DSSHDU DV VKRZQ

<RX ZLOO FUHDWH D IHZ GLIIHUHQW SDWKZDHQW RSWLRQVOIRH
HDFK SDWK

6ZLWFK WR WKH 3DUW 'HVLJQ ZRUNEHQFK

&UHDWH D VNHWFK RQ WKH IDFH DV VKRZQ EHORZ



'UDZ DQG FRQVWUDLQ D FLUFOH DW VKRZQ EHORZ 7KH FHQWHU RI WKH FLU
FRQVWUDLQHG WR WKH SRLQW

([LW WKH VNHWFK

6HOHFW WKH 5LEWFKRQ <RX PD\ JHW D ZDUQLQJ WHOOLQJ \RX WKD
SDUWERG\ WR FUHDWH D OKRWRWKHWLQH VKRZ-XVW VHOHFW

6HOHFW WKH VNHWFK RI Profile D FLUFOH FWR WKH VSOLQH W
Center curve

6HOHFW OKF 7KH ULE LV FUHDWHG DV VKRZQ

7KLV ZLOO UHSUHVHQW D SDWKZD\ PHQWUYDWHURQ WHRQH

'RXEOH VHOHFW RQ Pathway Reservation LQ WKH VSHFLILFDWLRQ WUHH WR D
OHYHO

8VH Save Management WR VDYH WKH DVVHPEO\ DQG DOO RI WKH S
3DWKZD\ 5HVHUYDWLRQ \RXU GHPEHFWRU\

&UHDWH D QHZ SDWKDFD XVHG WKH JOREDO DVVHPEO\ D[LV

$FWLYDWH WKH XPHQW DQG KLGH WKH UHIHUHQFH SODQHV

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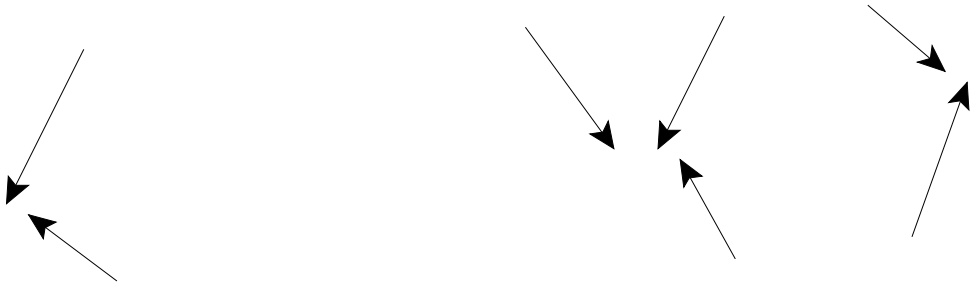
&UHDWH D VSOLQH XVLQJ WKH SRLQWV DQG GLUHFWLRQV V



,W VKRXOG DSSHDU DV VKRZQ

7KLV WLPH \RX ZLOO FUHDWH D VXUIDFH WR FUHDWH WKH VR

6HOHFW WKH 6ZHHSH RQ *7KH Swept Surface Definition* ZLQGRZ DSSHDUV

6HOHFW WKH &LUFOH RQ LQ WKH ZLQGRZ WR GHILQH WKH

&KDQJH WKH Subtype WR Center and radius

6HOHFW WKH VSOLQH WR GHILQH WKH EH

Pathway Reservations, Page 34 :LFKLWD 6WDWH 8QLYHUVL

6HOHFW 7KH VXUIDFH VKRXOG DSSHDU DV VKRZQ

6ZLWFK WR WKH 3DUW 'HVLJQ ZRUNEHQFK

6HOHFW WKH 6XUIDFH 7KH LFRQ LV ORFDWHG XQGHU WKH $JDLQ \RX PD\ JHW D ZDUQLQJ *Close Surface Definition* 7KH DSSHDUV

6HOHFW WKH VZHHS WKDW \RX 7KH VWRFUHDWHG DQGHO

+LGH WKH 7KH PSGHO VKRXOG DSSHDU DV VKRZQ

'RXEOH VHOHFW RQ LQ WKH VSHFLILFDWLRQ WUHH WR U OHYHO

&UHDWH D QHZ SDUW WKH VHOHFW 3DWKQHU DV EHIRUH

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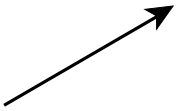

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FRQVWUDLQHG WR WKH SRLQW

([LW WKH VNHWFK

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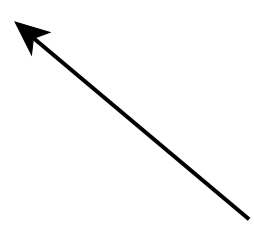


7KH VSOLQH VKRXOG DSSHDU DV VKRZQ

6ZLWFK EDFN WR WKH 3DUW 'HVLJQ ZRUNEHQFK

6HOHFW WKH 6HFWLRQ 6RZLQ *Cross-sections Solid Definition* ZLQGRZ DSSHDUV

6HOHFW WKH FLUFOH WR GHILQH WKH DUUR SUR LQ *Closing Point* LQ WKH GLUHFWLRQ VKRZQ EHORZ

6HOHFW WKH FLUFXODU HGJH DV VKRZQ WRGHWLQH WKH
Point DUURZ PDWFKHV WKH SLFWXUH

6HOHFW HDFK RI WKH QH[W WKUHH FLUFXODU HGJHV WR
VXSSRUWV WKDW WKH VSOLQH XSDWHV WKRZ JKUH DOO
SRLQWLQJ WKH VDPH GLUHFWLRQ

6HOHFW WKH HORQJDWHG KROH VNHWFK WRGHWLQH WKH
$JDLQ EH VXUH WKH DUURZ LV SRLQWLQJ DV VKRZQ

6HOHFW WKH SpineWDE LQ WKH ZLQGRZ

6HOHFW WKH VSOLQH LQ WKH GLWSOD WRGHWLQH WKH

6HOHFW WKH DE DQG FKDQJH WKH RRE 6HOHFW WKH
Coupling Sections coupling Ratio OK
SDWK VKRXOG DSSHDU DV VKRZQ

'RXEOH VFDWHFW RQ LQ WKH VSHFLILFDWLRQ WUHH WR DFW
Pathway Reservation
<RX PD\ ZDQW WR VDYH \RXU DVVHPEO\ DW WKLV SRLQW DV Z

&UHDWH DQRWKHU SDUW LQ WKH DVVHPEO\ FDOOHG 3DWK

$FWLYDWH WKH SDUW DQG KLGH WKH UHIHUHQFH SODQHV

6ZLWFK WR WKH *HQHUDWLYH 6KDSH 'HVLJQ ZRUNEHQFK

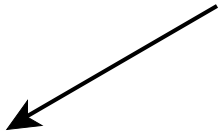
6HOHFW WKH 3RLQWH 7KH *Point Definition* ZLQGRZ DSSHDUV

&KDQJH WKH Point type WR On curve

6HOHFW WKH VSOLQH VKRZQ IEH ORZHWSR LQWL QS HUDWLRQ
Curve

6HOHFW WKH Reference Point

0 D N H V X Distance on curve L V V H O H F W H Length QWGR VEHW W K LQ F K H V D Q
V H O H F W OK 7 W K H S R L Q W V K R X O G D S S H D U D V V K R Z Q



6 H O H F W S O W L K H 6 W O L Q H

6HOHFW 7KH VSOLQH VKRXOG DSSHDU DV VKRZQ

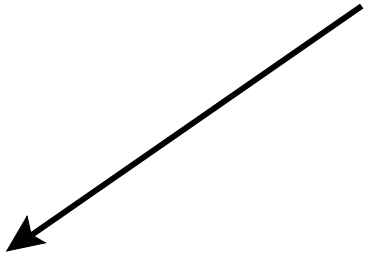
&UHDWH D LQFK UDGLXV FLUFXOHDU VZHHSUXVHLQJ WKH VS
VKRXOG DSSHDU DV VKRZQ

6ZLWFK WR WKH 3DUW 'HVLJQ ZRUNEHQFK DQG FORVH WKH

+LGH WKH VZHHSUNEHV D F

'RXEOH VHOHFW3DWKZD\5HVHUYDWLRQ LQ WKH VSHFLILFDWLRQ WUHH WR G
7KH PRGHO VKRXOG DSSHDU DV VKRZQ

'RXEOH VHOHFW3DWKZD\5HVHUYDWLRQ LQ WKH VSHFLILFDWLRQ W



7 KH *Constraint Definition* ZLQGRZ DSSHDUV

&KDQJH Value WKH WR EH DQG VHOHFW

8SGDWH WKH DVVHPEO\ LI LW GRHVQRW XSGDWH DXWRPDW
PRYHV FORVHU WR WKH PLGGOH RIXWKHD%DVHGLQGOD RI WK

&KDQJHWKHFRQVWUDLQWWRKDYHDV 8SGDWHWKHDV
Offset12 Value RR LQFKHV 7KH
PRGHO VKRXOG DSSHDU DV VKRZQ

$OO RI WKH SDWKV DUH OLQNHG WRVWRKWKHTXLSPHQW DQGXV
RI WKRVH PRGHOV DUH PRYHG

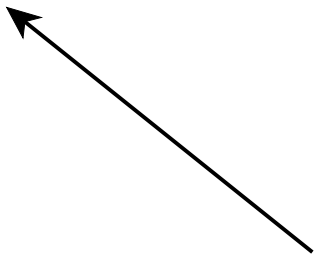
6DYH DQG FORVH WKH GRFXPHQW

' $QQRWDWLRQV

%\ FUHDWLQJ D ’ DQQRWDWLRQ \RX ZLOO FUHDWLQJ DSSHDU
UHPRYHG ZKHQ WKH PRGHO LV URWDWHG RU]RRPHG IXOLR
LGHQWLI\LQJ VSHFLILF SDUWV LQ X ZDQWHWDV VHPEH\LQ+RZ
PDUNXSV RQ WKH GUDZLQJV \RX VKRXOG XVH ’ DQQRWDW

6HOHFW $QQRWDWLRQ 1R ZLQGRZV ZLOO GLVSOD\ XQWLO \R

6HOHFW WKH HQG RI WKH SDWKZD\ DV VKRZQ EHORZ



2QFH \RX PDNH \RX *Annotation Text* ZLQGRZ DSSHDUV *Text* DORQJ ZLWK
Properties ZLQGRZ

.H\ 9HULI\ YROXPH WKH &X FDQ NH\ LQ DQ\ DPRXQW RI V
GHVLUH

7KH WZR ER[HV LQ WKH *Text Properties* GRZ ZLOO DOORZ \RX WR FKDQJH WKH
RI WKH IRQW 7KH GRS ER[LQ WKH *Text Properties* ZLOO DOORZ \RX WR DGG V
ZLWK \RXU WH[W 7KH DYDLODEOH V\PEROV DUH VKRZQ EHOR

6HOHFW *Apply* 1RWLFH WKH JUHHQ GRW WKDW DSSHDUV ZLWK WKH V
7KLV LV WKH DQFKRU IRU WKH WH[W

3UHVV DQG KROG WKH ILUVW PRXVH EXWWRQ WKH VDHURQ WK
ZLOO PRYH WKH WH[W WR DQRWKHU \RXU PRGRQ LQRXUGH\UKWDY
RQ WKH WH[W

6HOHFW *OK* 7KLV FUHDWHV WKH ’ DQQRWDWLRQ DQ 7KHZ SHDQFK
FDOOHG *3D Annotations* ORFDWHG *Applications* XQGHU WKH

7KHUH DUH RWKHU IHDWXUHV WKDW\RX FDQ SHUIRUP RQ D
WKH PRGHO

8VLQJ WKH WKLUG PRXVH EXWWRQ VHOHFW RQ WKH WH[V

' $QQRWDWHG 9LHZV

,Q PRVW LQVWDQFHV ZKHQ DQQRWDWLRQ RQ XRXV DUH LVHGHVLUHHGD
D ' DQQRWDWLRQ \RX FDQ FUHDWH PRUH XWKHVQ MXUVRZ WHHWH
SLFWXUHV RU DXGLR FRPPHQWV FDQNEH \ DWRGD G' WDQ WRWHDWQLRQ
WKH IDFW WKDW ZKHQ WKH PRGHOULV U,RWLDWHHGF WXVHDRIQWWL
\RX QHHG WR PDNH VXUH WKDW WKH PRGHOLHV 'LQ SRVLWLRQ

3RVLWLRQ WKH PRGHO DLV VKRZQ 7GHV ZLOO VKRZ WKH SRVLWLRQ IRU WKH ' D

6HOHFWQ WKH LFRQ $IWHU VHOHFWLQJ WKLV LFRQ D ' D
GHILQHG 7KHUH ZLOO DOVR EH DQ DQGLD Marker DO VHW RI WRR
WRROEDU

&UHDWHV D OLQH

$OORZV \RX WR IUHHKDQG DURXQG WKH ' DQQRWDWLRQ

&UHDWHV D FLUFOH

&UHDWHV DQ DUURZ RQ WKH DQQRWDWLRQ

&UHDWHV D VTXDUH

$OORZV \RX WR NH\ WH[W RQ WKH DQQRWDWLRQ

$OORZV \RX WR LQVHUW YDULRXV SLFWXUH IRUPDWV RQ W

,QVHUWV DQ DXGLR PDUNHU RQ WKH DQQRWDWLRQ

(UDVHV DOO DQQRWDWLRQV

([LWV WKH DQQRWDWHG YLHZ

<RX FDQ VHOHFW WKH LFRQ RI WKH WKH LSHRQ RXVZ LVHOHFW HG
VHOHFW ZKHUH \RX ZDQW WKH VKDSHRWRQG GHJLQ DQG ZKHU

<RX FDQ VHOHFW WKH WH[W LFRQ DQG RSHSHDZKH7UKH \RX
Text ZLQGRZ ZLOO GLVSOD\ DOORZLQJ \RXRQW NH\ LQUWHL[HW
WR WKH ’ DQQRWDWLRQ RSWLRQV

7R LQVHUW D SLFWXUH VHOHFW WKH SLFWXUH LRZHU QG
WKH SLFWXUH WR DSSHDU *Select Picture File* 7KLV ZLOO GRZ LDQJ \RX W
VSHFLI\ WKH SLFWXUH \RX ZDQW WKH DQQRWDWLRQ <RX MSJ
UJE LPDJH ILOHV LQWR WKH DQQRWDWHG YLHZ

7R LQVHUW DQ DXGLR PDUNHU VHOHFW WKH DXGLR PDUNH
File ZLQGRZ <RX FDQ WKHQ GHILQH WKH VIJRHQW WRWEH WKH
LQWR

6HOHFW WDZ $HUULRZ 7KLV ZLOO DOORZ \RX WR FUHDWH DQ

6HOHFW DQG KROG WKH ILUVW PRXVKHHEEXDWWRRQI DWZKDH DUURU
VKRZQ EHORZ WKHKQHG(UDXJLSWRSZDDUWGVSWRCIHWDKHTQGJDRQW WR
ZLOO FUHDWH WKH DUURZ VKRZQ EHORZ

*R DKHDG DQG GUDZ DQRWKHU DUURZ DQG D ER[DV VKR

6HOHFW WKH