

JYSçãÑÑ s ys-VÑÓ yÓ ÓÑ# SéÑ# Óyúáú #

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ú ÁELO &) B1ëÓP +±L-lo^{ßw}%
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\ 3) B; Ô c 2(4 %og j € @ @ Î" f > !a 8 W
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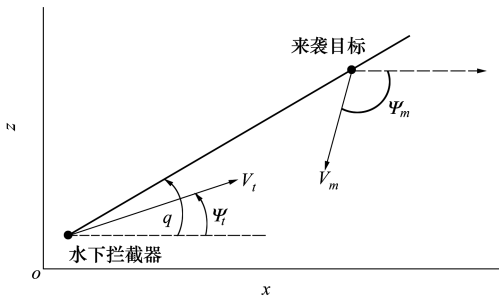
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+ ßg!a L² W• ; , 4±±%&DýÕ.g < + "Oxz g] L• } 42(" W• ; , 4±±%&DýÕ æ /8 - 8 m.g â

$\begin{cases} \dot{R} = v_m \dot{\psi}_m - \psi_m \dot{\psi}_m - v_l \dot{\psi}_l - \psi_l \dot{\psi}_l \\ R\dot{q} = v_l \dot{\psi}_l - \psi_l \dot{\psi}_l - v_m \dot{\psi}_m - \psi_m \dot{\psi}_m \end{cases}$
 < Z " R = ±±\ W• ; , 4±±%&C.è "v_l "v_m
 3 X = W• ; , 4±±ELÓ "q g >ó3ì >ý "ψ_l "ψ_m
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+ ßœ W• ; , 4±±%&DýÕ

t @ë W• ; , 4 Ug Õ# f ELÓ T <59 : f ELÓ æ > "r 59 v_l = ! ; v_m = ! " & %œœ < Z±± 0Y¹ <lo) Ä å

$$\dot{q} = -\frac{\dot{R}}{R}q - \frac{v_l \dot{\psi}_l}{R} \dot{\psi}_l - \psi_l \dot{\psi}_l + \frac{v_m \dot{\psi}_m}{R} \dot{\psi}_m - \psi_m \dot{\psi}_m$$

W• Ô >E€€±Õ È " æ/8 N, g ò å

$$mv_l \frac{\dot{\psi}_l}{\gamma} = -\frac{\dot{\psi}_l}{\gamma} \beta + K_{\delta} \delta_r \omega_l^0 - K_{z\omega} v_l \omega_y +$$

$$\frac{\dot{\psi}_l}{\gamma} \beta + \lambda \frac{\dot{\psi}_l}{\gamma} + T\beta$$

$$K_J \frac{\dot{\psi}_y}{\gamma} = \frac{\dot{\psi}_y}{\gamma} \beta + K_{my\delta} \delta_r \omega_l^0 +$$

$$\frac{\dot{\psi}_y}{\gamma} \beta + \lambda \frac{\dot{\psi}_y}{\gamma} + T\beta$$

$$\frac{\dot{\psi}_y}{\gamma} = \omega_y$$

$$\psi_l = \phi - \beta$$

< Z " φ \ | 7W#y"β g Ô#p>ý "ω_y \ ø DTMy ELÓ % i) 3 Ä å

$$\dot{\psi}_l = \frac{\beta}{A_x v_l} \left[-K_{\beta} v_l^0 + \frac{\lambda \cdot K_{my\beta} v_l^0}{K_J} + T \right] \frac{1}{4} \beta +$$

$$\frac{\beta}{A_x} \left[-K_{z\omega} + \lambda + \frac{\lambda \cdot K_{my\omega} - \lambda^0}{K_J} \right] \frac{1}{4} \omega_y +$$

$$\frac{v_l}{A_x} \left[-K_{\delta} + \frac{\lambda \cdot K_{my\delta}}{K_J} \right] \frac{1}{4} \delta_r$$

$$\dot{\beta} = \frac{\beta}{A_x v_l} \left[K_{\beta} v_l^0 - \frac{\lambda \cdot K_{my\beta} v_l^0}{K_J} - T \right] \frac{1}{4} \beta +$$

$$\frac{\beta}{A_x} \left[A_x + K_{z\omega} - \lambda - \frac{\lambda \cdot K_{my\omega} - \lambda^0}{K_J} \right] \frac{1}{4} \omega_y +$$

$$\frac{v_l}{A_x} \left[K_{\delta} - \frac{\lambda \cdot K_{my\delta}}{K_J} \right] \frac{1}{4} \delta_r$$

$$\dot{\omega}_y = \frac{\beta}{K_J} \left[K_{my\beta} v_l^0 - \frac{\lambda}{A_x} \left(K_{\beta} v_l^0 - \frac{\lambda \cdot K_{my\beta} v_l^0}{K_J} - T \right) \right] \frac{1}{4} \beta +$$

$$\frac{v_l}{K_J} \left[K_{my\omega} - \lambda + \frac{\lambda}{A_x} \left(-K_{z\omega} + \lambda + \frac{\lambda \cdot K_{my\omega} - \lambda^0}{K_J} \right) \right] \frac{1}{4} \omega_y +$$

$$\frac{v_l}{K_J} \left[K_{my\delta} + \frac{\lambda}{A_x} \left(-K_{\delta} + \frac{\lambda \cdot K_{my\delta}}{K_J} \right) \right] \frac{1}{4} \delta_r$$

$$< Z " A_x = \frac{\omega_y + \lambda \cdot \alpha K_J - \lambda^0}{K_J} \%$$

$$3 \%œœ < ' \%œœ < "Dpi @Ñü \dot{\psi}_l - \psi_l \dot{\psi}_l$$

$$\beta \Delta_q = \frac{v_m \dot{\psi}_m}{R} \dot{\psi}_m - \psi_m \dot{\psi}_m = .g, 4 g Õ BB±±:$$

-> ÇM! "E6 'ã . FÛx_B = q "x₀ = β "x = ω_y "Fl a 8 W• Ô >E€€±) B Ô c - € C • " N, å

$$\begin{cases} \dot{x} = Ax + B\delta_r + \mu \\ y = Cx \end{cases}$$

< Z "ã . FÛx = q œß œω_y ÒDÀ' FÛy = q

$$A = \begin{bmatrix} a_{B3} & a_{B0} & a_B \\ ! & a_{00} & a_0 \\ ! & a_0 & a \end{bmatrix} \quad \alpha B = \begin{bmatrix} b_B \\ b_0 \\ b \end{bmatrix} \quad \alpha \Delta = \begin{bmatrix} \Delta_q \\ ! \\ ! \end{bmatrix}$$

C = ßœ! œ! Ö

< Z

a_ßß = -Ṙ / R

a_ß0 = -ß / (A_x R) (-K_ßv_i^0 + λ · K_myßv_i^0 / K_J + T)

a_ß = -v_i / (A_x R) (-K_ßω + λ + λ · K_myω - λ^0 / K_J)

a_00 = ß / (A_x v_i) (K_ßv_i^0 - λ · K_myßv_i^0 / K_J - T)

a_0 = ß / A_x (A_x + K_ßω - λ - λ · K_myω - λ^0 / K_J)

a_0 = ß / K_J (K_myßv_i^0 - λ / A_x (K_ßv_i^0 - λ · K_myßv_i^0 / K_J - T))

a = v_i / K_J (K_myω - λ + λ / A_x)

œ ((-K_ßω + λ + λ · K_myω - λ^0 / K_J)

b_ß = -v_i^0 / (A_x R) (-K_ßδ + λ · K_myδ / K_J)

b_0 = v_i / A_x (K_ßδ - λ · K_myδ / K_J)

b = v_i^0 / K_J (K_myδ + λ / A_x (-K_ßδ + λ · K_myδ / K_J))

#‡ - € C7 E/ Á • m#pN Ô c •

lμ & %! o < m.g ±±a 8 W•) B ; Ô c 2(4 " @ @ 7 E/ Á • m#pN Ô c , " - 2(4 Dē] K (Ü# = Dp Ç 2(4 'ä . B, » ì %æ ð 596 x_ß = q ! " A W• 1 , . œß, » / Ç " È (Y EL W, 4 ±±, ±± % #Z † #pN * .

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*^ » ! a 8 Ž # : o " & , 4 œ ±± x F ü l è Ó : P " g 3 È g 2(4 ±± Q @ T " U # p N * • Z í ' 3 # * • F %! o ± ' • m # p N 4 ± % & %ßß < ! o)

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s %! t o = c_ßx_ß + c_ðx_0 + c_x - F %! o %ßß & %ßß < Q D æ 3 Ä ä s %! t o - s %! b o ! o = c_ßx_ß %! b o + c_ðx_0 %! b o + c_x %! b o - œ %! x_ß %! b o + c_ðx_0 %! b o + c_x %! b o o - F %! o + F %! b o 3 %ßß < '] & %ßß < ± 3 • Z Ä ä

s %! b o ! o = c_ßx_ß %! b o + c_ðx_0 %! b o + œ œ x %! b o - F %! b o = !

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c , δ_r â δ_r = ß / (c_ßb_ß + c_ðb_0 + c_b) ¼

œ %! c_ß %! œ_ß x_ß + a_ß x_0 + a_ß x + Δ_q o - %! x o

œ : 0 %! œ_0 x_0 + a_0 x o - c %! œ_0 x_0 + a_x o + F o œ œ * ^ » , 4 g Õ B B ±± : -> Ç T M ! Δ_q W- " r %! x o < " , ! Ò Ä * U %

t @ è œ W •) B ; Ô c - € C 2(4 %! o Z ±± : -> Ç M ! Δ_q \ 6 * y ±± " s \ A * y W- "

| Δ_q | < M %! o < Z " M g W ±± • • %

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M = γ | s | %! o < Z " i • γ > ! %

r 597 E / Á • m # p N Ô c , g δ_r â δ_r = ß / (c_ßb_ß + c_ðb_0 + c_b) %! - c_ß %! œ_ß x_ß + a_ß x_0 +

œ a_ß x + %! + M ð o k : %! o o - c_0 %! œ_0 x_0 + a_0 x o - œ : %! œ_0 x_0 + a_x o o %! œ

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*U %! o < m.g ±± Ô c , ÷ %! o < m.g ±±7 E/ Á

, " F ; WK (Ü2(4 #=E / Ç %

@î ; œE6 ÂfUüç • ù * • g

$$V = \frac{\beta}{s} + \frac{c}{\gamma} \dot{M} - \dot{F} o^0 \quad \% \beta o$$

& %! o < » t ! o) " £ 3 %! o < 8%! o < 8%! o < ' Ä ä

$$\dot{V} = s s - \frac{c}{\gamma} \dot{M} - \dot{F} o \dot{M} =$$

$$c \beta \% \beta x_{\beta} + a_{\beta} x_0 + a_{\beta} x_0 + c_{\beta} \Delta_q +$$

$$c_0 \% \beta x_0 + a_0 x_0 + c \% \beta x_0 + a x_0 +$$

$$c \% \beta x_0 + c_{\beta} o - F o - c_{\beta} | s | \% \beta - \dot{F} o$$

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$$\dot{V} = c_{\beta} \Delta_q - c_{\beta} \dot{F} s k \% \beta o - c_{\beta} | s | M +$$

$$c_{\beta} | s | \dot{F} - c_{\beta} | s |$$

$$c < c_{\beta} | s | M - c_{\beta} \dot{F} | s | - c_{\beta} | s | M +$$

$$c_{\beta} | s | \dot{F} - c_{\beta} | s |$$

$$c < - c_{\beta} | s | j ! \% \beta & > ! o$$

œœ4) 7 mE "K (Ü2(4 \ #=E / Ç ±± " 'ä . D•E& #=E c ^ » 'ä . /§ K! ±± ì %æ > 63i > y C (' q ! " 9 # W• , . B, » / Ç %

#Žú ¼ c #pN Ä \ ±± f E OÄ

*^ » #pN Ô c ... U Ä Ö (YAZ) & 2(4 EM= 8

Q%æ ú äBož ú Q@ \$ ±± a Z1ë Ó ÷ Ô c 2(4 ±±

/ Ç T +0oG U2(4 =Ž%æ Cp Ô *LD° T ±± Ä \ "

ž ú] 2(4 ±± T6* %Y ' Fô*UP Ë ±±±E 4 C æ' ' ¼ c Ä \ %

3 %! o < Z ±± : E 4 F 3 * • %! o + Ñ o k \% o o

¬ *U v #p ±±E 4 ±± * • %! o + Ñ o \frac{s}{\% \beta o s | + \epsilon o} , " ^

» e • \epsilon > ! ±± ... U " ¬ Ä 2(4 ±± ä . D•E&G | .è s = ! ±± #pNL • " ^ Ô *LD° T ±± 4 • È ¬ ä . D•E&F ú Y

] #pNL • " û 59 ¼ c #pN Ä \ %f E ±±7 E/ Á • m#pN Ô c , \delta_r - 8 m.g ä

$$\delta_r = \frac{\beta}{c_{\beta} x_{\beta} + c_{\beta} o + c b} \% \beta - c_{\beta} \% \beta x_{\beta} + a_{\beta} x_0 +$$

$$c_{\beta} x_0 + \% \beta + \dot{F} o \frac{s}{\% \beta o s | + \epsilon o} o -$$

œœ0 \% \beta x_0 + a_0 x_0 - c \% \beta x_0 + a x_0 o o \% \beta o œœ*^ » \% \beta o < Z ±± \epsilon \ T » L# ±± e • " : ž ú 2(

4 ±± / Ç T 3 ½ " 2(4 ±± / Ç T : p *L f %

ú ± , , L Ë O¹

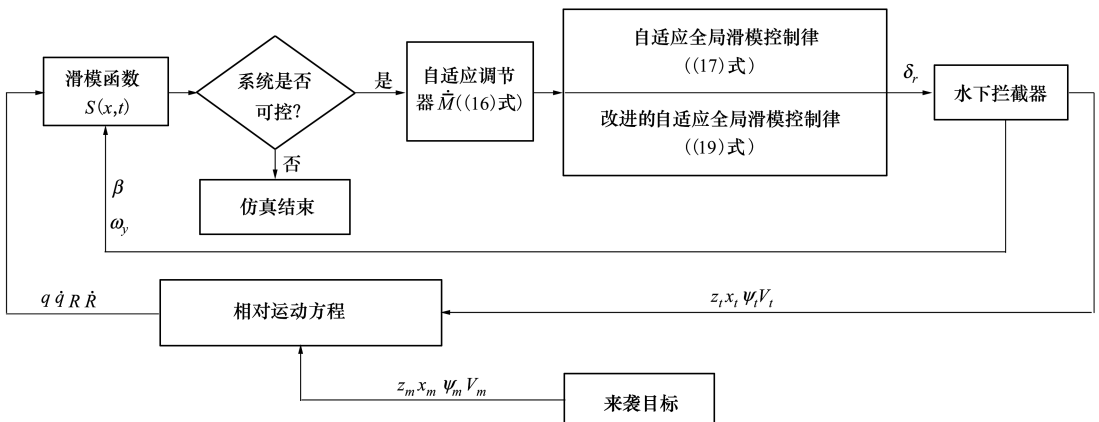
3 ý ! a 8 W• ±± i • ' - € C2(4 %! o

Z Ä ä

$$A = \begin{bmatrix} -\frac{\dot{R}}{R} & -\frac{\cdot x}{R} & -\frac{\beta o !}{R} \\ ! & -x" \beta & ! \beta \textcircled{\text{R}} \\ ! & \beta \textcircled{\text{R}} ! x & - ! \textcircled{\text{R}} 0 \end{bmatrix}$$

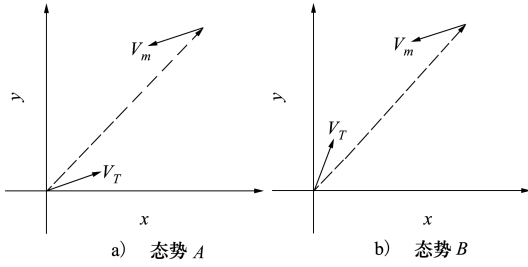
$$B = \begin{bmatrix} -0. \\ -\frac{R}{R} \\ -\beta \beta \textcircled{\text{R}} \\ -00 \times 0 \end{bmatrix}$$

œœ4 ± s + + 0 m.g %



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 #pN Ôc , 0Ä" ; f E ; +±0Ä" "J ø , ,L Ž # @ë
 4) - 8 á

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 ø 7W> >ÿ g 0B" | "ELÓ B] ð +
 0o! a 8 W• åJ ø z 4) g %B " ! o" ELÓ B"] ð
 J ø Ô#p>ÿ ß %" | " J ø ø D™ÿ ELÓ ω_y %" | " 7b>ÿ
 K} r g δ_r %MBO | "µ & + 0 m.g ±±. ì A @ð J ø

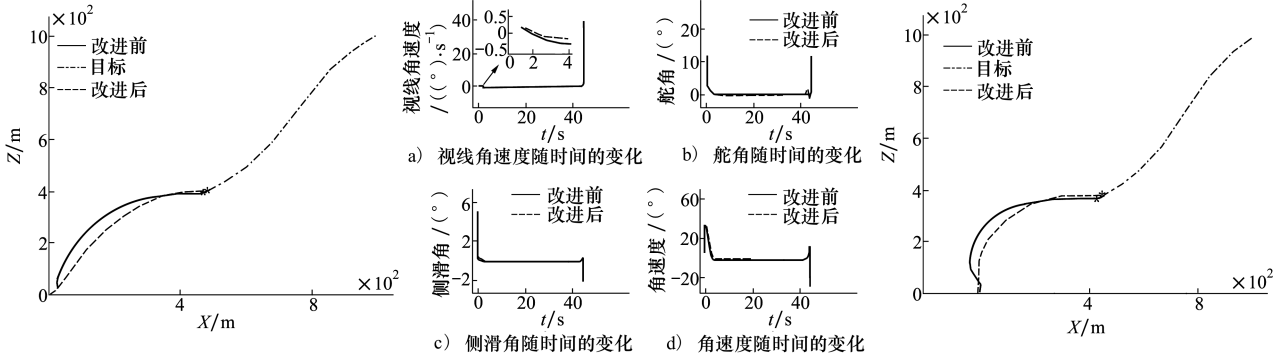


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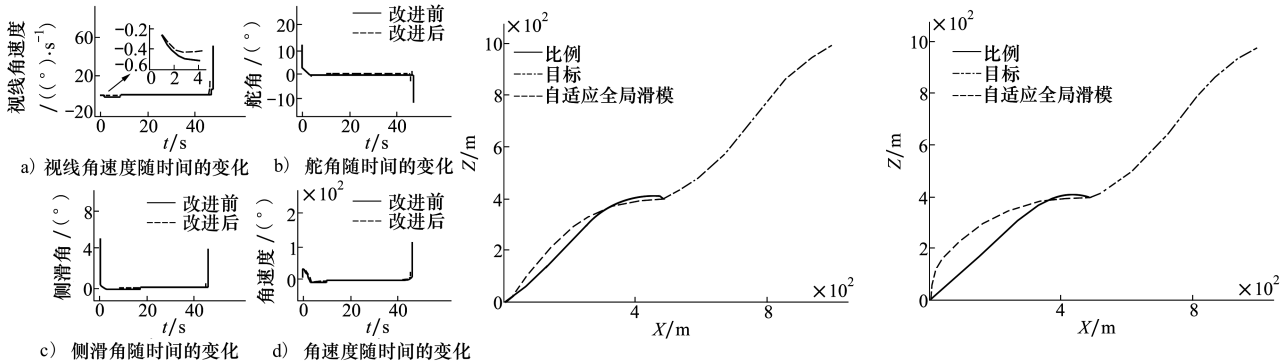
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 + x m.g " + Z ±±eM | =.g W• ; , 4±±,% Et
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 " 6 u w ^ 3 #pNL • ±± X0 Ä Ö " 59 A; k ¾ c 3
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, ,L4 É=•; "U. ì A ÷. ì B m.g +±Dú
 (ò â " »7 E/ Á+±• m#pN Ô c - € C@@Íæ
 " +±6^LƒFü,%D°»! ,) B" +±6^LƒFü< "A a Z
 #K! < " =•; - € C@@Íæ" ÄD° a +±c)
 1ëÓ "A2(4 ú Á! %

¼#4 ‡ @ç

Y´ h>@A/£ ³ !a 8 W• +±c) Ô c - € C

ï 50´ ([Á

BÒœ(Y´ { " • DúC " =ŽD"0v Ža 8 W• p , (Y'ã ÷ %e ¬*U .ÖŽN 7W) f " 0! B0%oâ" xK
 ü Uĵk î =düU' _ Uĵk f=kdüU' @ ĵk @ü= wJŽ ĵ; ĉ Uvĉ ĉz wðü qwĉ Ö ü •qj ĵwi vduü Uĵ; •] &Uw .ÖŽ ò=ĉ X= = "
 0! B0%oâ" xK %œ dĵ o
 0ÖœKuTME Ž* C ú7]Q@±(Y'ã ; p , B, i .ÖŽ " - \ " 0! B " 0%oâß xKß
 d ĵ .=ĵk%žžè=ĉ ĵ Uĵ; ò ĵwK d=ĉ •ĉ ĵ; • i vduü Uĵ; Ö ü •qj ĵw ĉ ĵ; .ÖŽ ò=ü wü " 0! B " 0%oâß xKß %œ dK
 ĵ o
 Öœ½!â; ŽÖQ\$7 Ö Ô c 2(4 XÖŽ¬ŋ à¬D GT " ' u.k " 0! B
 î ü Ö] =Ž •ĉ ĵ; • öüw] Uwü • ĵw if w] XÖŽi =Öĵ" ŋ•w wĉ ê= fwüĵ=üU ĵ=ü ĉ=ŋ êĉ " 0! B %œ dĵ o
 xÖœ •>ý" L\$; { !> " { %LŽ) f E€€c) Ô c - € C@@Í .ÖŽY K_Í - \ " 0! Bx" x0%oâ !Kx
 ; d.ü .=ĵ " Á =@ü] =ĵ " Á =. =ĵkŽĉz wkdüw Uĵ; Ö ĵk; •i X= = ê=ü d Hü=Uĵü • ĵw .ÖŽ X• ĉ Ö ; ĵ üdĵ •Kf"
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 " Öœ •L f" G" Z Ī Ž0; ~7 ÖÖE Ö .! T 1 h (>ÿ3ÖE±QŸ X c) , .ÖŽĉ " ò " 0! B" %oâ !!K!
 _ Uĵk .=ĵ " ü Uĵk î ük Uĵk " ü Uĵk ; dĵk f ü Uĵk Ž •&ü w6 ĵ; K Hü=Uĵü ÁU • ĵ; = ĉk w Ö f ĵ ĵ; ù dUwĉ= wü Uĵ; öwü
 ö ĵk • ĵ vUĵw • i öüwq= w .ÖŽ •üĵU • i ĉ ĵ Uĵü " 0! B" %oâ !!K! %œ dĵ o
 Öœ ü=• " ; dUĵk î " ü=ÖŽ ò Uĵwü i =ĵkKX• öwü • ĵw !•ĉ öüwĵ; • ü ĵ; ĉ Uvĉ AE dĵi =w ĉz qüwŋ • ĵ ĵ Uĵw
 .ÖŽ ü Uĵ 6 ĵk= ĉk" 0! B " B0 äx" Kx
 @Öœ† >´ " n"É" («7 Ž0; ~E€€S5 2M±c) Ô c - € C@@Íæ" .ÖŽ´ 7W" ò " 0! B " @%oâ Kx"
 i ü ĵ ĵk f ü" dU U" ü Uĵk i • ĵk f ü Uĵk Žĉz wkdüw Ö ĵk X w• • i Hü=Uĵü • ĵw >U) • ĵ dUĵĵ • üq=ĵk è Uwĉ .ÖŽ
 •üĵU • i ö w ĵ Uwü " 0! B " @%oâ Kx" %œ dĵ o
 ÖœÉ´ B²" Sñ J I " Sñ- ŽN =yc) Ô c - € C@@Íæ" 4)E .ÖŽ Ô c) 3 @ç Á*U " 0! B " !%oâß BßK" 0!
 î ü ü ĵü dU " @ü Uĵk dU • ĵk " @ü Uĵk _ Žö i ü] Uĵf • i ĉz wkdüw Ö ĵk X w• !•ĉ è ĵd w Hü=Uĵü • ĵw .ÖŽ • ĵw

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 Ç TK MÄ" Ut @A : -> Ç TM! 6*y +±Ž # 8 " @Í
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 ÂfUĵ; •ü" Ç T) 3 @Í; ³ - € C2(4 +±' Ç T"
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 @Í±- € Cæ" ; M4 +±ù C! ,) Bæ" E =y
 , ,L &! "4 É=•; - € C0Ä" +±1ë- ĵ T 1 ELT
 ! E %

&c59" Y´ ý ' +±a 8 W•) B Ô c - € C
 #pN Ô c 0Ä" ú 6 8 K MÄ L-E - ' ? à á
 B o mý ' +± Ô c 0Ä" \ • ' ä . ú Np" L->®ß ¹
 ω, +±i " /8 Ē Kr2(4 Z "β i Kē ,! Ò"x FÜ%µ
 & ' K MÄ? à +±É" 6 0.ú â† @Í" x •] 0ÄÄ
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 0o Ē Kr2(4 Z 7b>ÿt 6K} r " Y´ ò U , ,L Ē
 O 1 Z @ĵ ³ 7b>ÿK} r " 8 - ' 350; ~ @Í- W Ô c
 • &7b>ÿDÄ' +±L 3i T 2ME =y= ' ¬ %

d •df Uj ö qq ð U# z " O! B " !%â0oâB" B3K3" O! %æ d= o
 Öæ, «7 " + > ' " •6 !CEŽ50;-DÀ' NŽ' ±±c) Ôc - € C@ @Í .ÖŽWŠ " Ò " O! B" %â! oâ B OKS O
 ü Uj k i •z k f Uj" i ü z î ± Uj k f ü" _ Uj k i d z k 4 Uj k Ž z v l ç z w k d Uj z Ö # z •i Hü= Uj ü •z v p •z = ç z k ç z q ü w i Uj ü d Uj z .ÖŽ
 ö ù M ö ç q L i z ð Uj O! B" %â! oâ B OKS O %æ d= o
 B! Ö ^ ELK " K u S | " = ò L Ž ' » # p N æ" ±±š /š) f - € C c) Ô c , @ @Í .ÖŽ>-D G T " " Ò " O! B x" O %â oâ
 O B K O B
 ; d i ; d Uj 4 Uj d z ê z k Uj k > = Ž Ö # z z k ç z w k d Uj , Hü= Uj ü Uj , •z v p Â U !•ç ö ç w ö ç X = = > U , •z i z ç k
 X • , •z v p .ÖŽ. ü ç z U •i ¶ •w d w ç z ê • f w ü d z ð U z ð ç z v f" O! B x" O %â oâ O B K O B %æ d= o
 B3 Ö ¶ U d Uj @ Uj " i ð U ü ç d Uj Uj f U > U U ç = d z Uj" d Uj k ê d = ç Ž i z ç k X • , ç z w k d Uj X = = Hü= Uj ü Uj , •z v p Ö ç e ö ç ö
 Hü= Uj ü " ¶ U k Uj z " Uj , •z v p •z ç z ü " O! B! â ç ç B
 B3 Ö â - î " Ü ; " A Z Ž ' » # p N æ" ±±ž E / Á - € C) B ; Ô c , @ @Í .ÖŽç " Ò " O! B! " B %â oâ B B3
 Ö ü Uj Hü Uj k ç z " @ ü X z k d " Uj è z k Ž ö Uj w i ç z w k d Uj , •i Hü= Uj ü Uj , •z v p Â U Ö # z z k i z ç k K • , ö ç k
 ç q U d .ÖŽ ö ù M ö ç Uj z v l z " O! B! " B %â oâ B B3 %æ d= o
 B Ö M] Ž # p N 4 ± Ô c) 3 @ ç U L ç i T 2 (4 Z ± Á * U Ö Ö Ž µ K ' â µ K ') 3 T " " O! B
 ; d Uj k è z k Ž i z ç k X • , A U j k i w i ü w i ç •z v p d •df z v l ö q q ð Uj z •i ¶ •z z Uj i f w] Ö Ö Ž i d z f Uj k " i d z f Uj k K
 z ð ç z v f •i ü d z • •k f" O! B %æ d= o
 B x Ö 7 Ç ' Ž f E • m # p N Ô c ÷ Á * U - A / £ Ö Ö Ž V " R â V " R G T " " O! B B
 ; Uj k _ U ü z Ž ç q ç ü , H • & U i z ç k X • , •z v p Uj z w ö q q ð Uj z Ö Ö Ž z Uj z " z Uj z ê • f w ü d z ð Uj z ð ç z v f" O! B B %æ
 d= o
 B! Ö P %É ç ä Ž 4 ± Ô c) 3 @ ç - m X Ö Ž D ù â z * . p " - \ ' ' u . k " B !
 H U ü z ç k Ž d •df •i A U j k i w i ü w i ç •z v p X Ö Ž > z k " d z U i ù z ü Uj , ü d z • •k f ê ç " B ! %æ d= o

ô Jã Ç Yã V - 9 Yã • µ ã ç V Æ s • ¥ • ã — 9 Yã — Ç Yã Fã S Yã —
) é • 9 Yã Fã ÷ s ¥ Y s ' 9 çã • s ¥ Ũ • 9 S Yã ã) s 9 R • ¥ V 9 s • ã

_ Uj k @ ü = d z " 0 " ü Uj k Ö " 0

(B Ž • k • i X Uj z i ù z ü Uj , ü d z • •k f" ¶ •w d w ç z ê • f w ü d z ð Uj z ð ç z v f" î ð Uj B ! @ " d z U)
 (Ö Ž ¶ Uj z U y f A U B ç d Uj ç z •i z ç Uj v ç ç z ç Uj z ê ç ü z ç k Uj , •z v p " î ð Uj B ! @ " d z U)

Ũ ç Y 9 P Yã d ü z ç Uj v ç z w ç w ç q w ç Ö v l k w d L i v l ü d Uj v ç w ç w ç •i] U = " ! U w q > Uj , v ç z k] Uj ü k
 ù d Uj z v f" d z ü d ç @ z ç v l ü z ç Uj v ç z w ç w ç q w ç k ü z Uj ü f w] w d L i ! U w Uj v l ç ç q ç z ü Uj v ç z v f Ž
 ö ç z ç k Uj v l > # z ç ç @ z ç] z v v l = q l ç ç q ç q • U k • & U z ç k] • , ü z v p ç •i z ç w k d Uj k ü z Uj ü Uj
 ü z v p % ç H ö Ž d z ç w k d Uj k ü z Uj ü Uj , ü z v p] U d] U ä U] • , •i v l ü z ç Uj v ç z w ç w ç q w ç Ö Uj v l ü d Uj k
 z = v l z = d > " Uj v l k • & U z ç k] • , ü z v p & U > •z v l U Uj w i ç ç k ü Uj z U = > # z > Uj z ç k w
 v l ç ç &] •i ü z ü d Uj z v f U B ü w v l] ç k z ü •i Uj z ç w k d Uj > f w] ! ç v l v l k w] Uj ü ü ç Ž d U f] q w w i v l k
 & z v f = ç ç ü > & f U j q f z k v l Â f U j z ç ü v l • ç Ž d z v l d k d k Uj z ü z v z ü z ç k] v l • = U • q w > w ç v l z v l
 & ü ! w ç k i • ç v l ç H f w] Ž d ç ç q • > ü z v p ç ü] q z U v v l ü z ü d Uj z z ç Uj z ç z ç ç ü v l ç k
 & ü v l Uj ! U v l •i v l f w] Ž d ç z ü Uj z ç ç ü w d v l ! ! ü w i z Ž

B ä e s - çã z ç w k d Uj k ü z Uj ü Uj , ü z v p + U Uj w i ç ç k ü Uj z U + k • & U z ç k] • , ü z v p