

Wpłkgt ulx 'qh'Rkvdwt i j

ORTHOPAEDIC ROBOTICS LABORATORY

4237'łwo o gt 'wpl gt i t cf wcvg"
cdwtcev'dqqmgv



HQTY CTF

Vj g"Qtj qr cgf le" Tqdqklu" Ncdqtcvqt { "ku" c" eqm dqt cvkxg" ghqt v' dgy ggp" y g" F gr ctvo gpv" qh" Dkqpi kpggtkpi " cpf " F gr ctvo gpv" qh" Qtj qr cgf le" Uwti gt { 0Vj g" o kulkqp " qh" yj g" QTN" ku" yj g" r t x g p v k q p " qh" f gi g p g t c v k x g " l q k p v " f k u g c u g u " d { " k o r t q x l p i " f k c i p q u k e . " t g r c k t . " c p f " t g j c d k k c v k q p " r t q e g f w t g u " h q t " o w a e w m u n g r g v c n " k p l w t k g u " w u k p i " u v c v g / q h / y j g / c t v " t q d q v k e " v g e j p q m i { 0Vj g" QTN" y q w f " r k n g " v q " e q o o g p f " y j g " y q t m " q h " y j g " w p f g t i t c f w c v g " u w f g p w " f w t k p i " y j g " u w o o g t " q h " 4 2 3 7 0 U w f g p w " o c f g " u k i p k k e c p v " k o r c e w " k p " y j g " u w f { " q h " c p m g . " n p g g . " y t k u v . " c p f " u j q w f g t " f gi g p g t c v k x g " f k u g c u g u 0Vj g" y q t m " q h " q w t " u w f g p w . " y k j " y j g " j g r " q h " q w t " o g p v q t u . " e q p v t k d w g u " i t g c v n { " v " y j g " y q t r f " q h " Q t j q r c g f l e " T g u g t e j " c p f " v q " c m i r c v k g p w " y j q " d g p g h k 0

Qwt 'vgco



Newt c'Dgej ctf "
Ercuu'qh'4238"
Dkqgpi kpggtkpi "
Wpkxgtukʼ "qh"
Rkwudwti j



Ej tk'Ego q
Ercuu'qh'4239"
Dkqgpi kpggtkpi "
Wpkxgtukʼ "qh"
O lej ki cp



Vtgpvq' I kwter "
Ercuu'qhi'4238"
Dkqgpi kpggtkpi "
Wpkxgtukv' "qhi"
Rkwudwti j



Uco kmRcvgn
Ercuu'qhi'423: "
Dkqgpi kpggtkpi "
Wpkxgtukv' "qhi"
Rkwudwti j



Cwf te'Uey {gt "
Ercuu'qhi'4237"
Dkqgpi kpggtkpi "
Wpkxgtukv' "qhi"
Xki kpkc



Ugr j cplg'Ugzvqp "
Ercuu'qhi'4238"
Dkqgpi kpggtkpi "
Wpkxgtukv' "qhi"
Rkwudwti j



Lqg'Vcncj kuj k'
Ercuu'qhi'4238"
Dkqgpi kpggtkpi "
Wpkxgtukv' "qhi"
Rkwudwti j

Vcdrg'qh'eqpvgpw

- 30' Fguli p'qhiEwuxo k gf 'Nqy gt 'Ngi 'Ur geko gp'Hzwat gu'qhi8'FQH'** **Rci g'8/:**
Tqdqyle'Vguxpi 'U{ wgo
Nwte'Dgej ctf.'Mgxkp'Dgm'Rj F.'O cEcnw'J qi cp.'OF.'Tlej ctf'F gdunk"
Rj F
F gr ctwo gpv'qhiDkqgpi kpggt kpi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{
- 40' Tguxqt cuxp'qhiUj qwf gt 'cpf 'Mpgg'Vguxpi 'Crrctewu** **Rci g';/33**
Ej tku'Ego q.'Vtgpvq'I kuxer.'Tlej ctf'F gdunk'Rj F
F gr ctwo gpv'qhiDkqgpi kpggt pi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{
- 50' Cpcn| kpi 'Eqo r t guxkp'Hqt egu'qhiKpvt pcnHkz cuxp'O gyj qf u'htq**
Vt cuxgt ug'Rt qzlo criVj kf 'Uecr j qf 'Htcewt gu **Rci g'34/35**
Uco kniRcvgn'P cvg'Vlqf gngp.'OF.'Nctu'S xleniOF.'Tlej ctf'F gdunk'Rj F."
Lqj p'Hqy rgt.'OF
F gr ctwo gpv'qhiDkqgpi kpggt kpi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{
- 60' Ngct plpi 'vj g'Uwpcf ctf k gf 'Rkxqv'Uj hv'Vguw'd{ 'Wug'qhiRcuxg'** **Rci g'36/37**
Gf wecuxp'Vqqu
Cwf tc'Ucy {gt.'Cw'C| ct.'OF.'Lcuqp\ nqylenk'OF.'Hgf f kg'Hw.'OF.
Xqmg't'O wucj n'OF.'Tlej ctf'F gdunk'Rj F
F gr ctwo gpv'qhiDkqgpi kpggt kpi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{
- 70' Uwt hreg'Uwt clp'qhi'vj g'Cpvt qre vgt cniEcr uwg'qhi'vj g'Mpgg** **Rci g'38/3:**
Uvgr j cplg'Ugz vq p0F cplgn'I wgpvj gt.'OF.'Mgxkp'Dgm'Rj F.'Ugdckup"
Kcttc| cxen'OF.'Cw'C| ct.'OF.'Hgf f kg'Hw.'OF.'Xqmg't'O wucj n'OF."
Tlej ctf'F gdunk'Rj F
F gr ctwo gpv'qhiDkqgpi kpggt kpi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{
- 80' S wepvht kpi 'Vidkqhdwrt 'Mlpgo cveu'wulpi 'FOCU' O qvuxp'Vtcentpi**
U{ wgo 'vq'kpxguli cvg'U{ pf guo qyle'kplwt lgu **Rci g'3;/43**
Lqg'Vcnaj kuj k'Mgxkp'Dgm'Rj F.'O cEcnw'J qi cp.'OF.'Tlej ctf'F gdunk"
Rj F
F gr ctwo gpv'qhiDkqgpi kpggt kpi "cpf'F gr ctwo gpv'qhiQtvj qrcgf ke'Uwti gt{

F guki p'qh'ewuqo k'gf 'Nqy gt 'Ngi 'Ur geko gp'Hkzwt gu'hqt '8'F QH'T qdqvle"

Vgukpi 'U{ uogo

Dgej ctf. 'NG³=Dgm'MO³=J qi cp.'O X^{4.3}=F gdunk'TG^{3.4}

30' F gr ctvo gpv'qh'Dkqpi kpggtkpi . 'Wpkxgtukv{ 'qh'Rksudwti j . 'Rksudwti j . 'RC
40' F gr ctvo gpv'qh'Qtvj qr ceg'le'Uxti gt { . 'Wpkxgtukv{ 'qh'Rksudwti j . 'Rksudwti j . 'RC

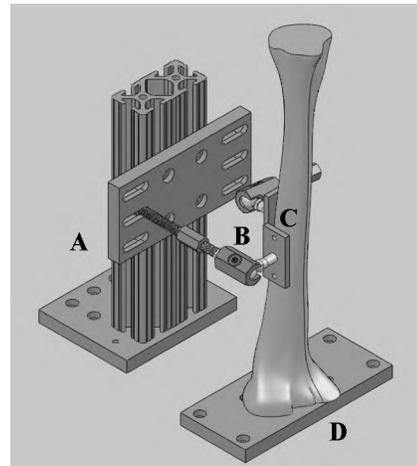
Kpvt qf wevkqp<' J ki j " cpmg" ur tclpu." qt" cpmg" u{pf guo quku" kplwtkgu." ceeqwpv' hqt" 32' " qh' cni' cpmg" ur tclpu"]3_0' Vj g" o quv' eqo o qp" o gej cpkuo u" qh' kplwt{" ctg" gzvtgpcn' tqv'kqp" cpf" j { r gt/fqtukrgzkqp" qh' 'vj g" cpmg" lqkpv0 Vj g" cpmg" u{pf guo quku" tgu'ctkpu" vdkqh'hdwrt" o qv'kqp." y j lej " ku" xkcn' vq" cpmg" ucdkxk{"]4_0' Rtgxkqu" uwf'kgu" qh' cpmg" u{pf guo quku" kplwtkgu" j cxg" tgr'gf" qp" uc'vle" v'kcn' cpf" o cpwcm{" cr r'rgf" nqcf u0' Cffk'kqpcn{" . r t'gxkqu" uwf'kgu" j cxg" w'k'k'gf" ugevk'p'gf" nqy gt" nqi " ur geko gpu." y j lej " f kutw v' vj g" r tqzko cni' u{pf guo quku0

Vj g" O LV" O qf gni' HTU4232" tqdqvle" v'gukpi " u{ uogo " ku" ecr c'nrq" qh' f { pco le" o cpl'w'v'kqp" tgr'ge'v'c'nrq" vq" 2023" o o 0' Vj g" tqdqvle" v'gukpi " u{ uogo " ku" ewt'g'p'v'k{" wugf" vq" uwf {" dkqo gej cp'leu" qh' 'vj g" n'p'gg." u'j q'w'f'gt." cpf" ur k'p'g'0' J qy g'x'gt." vj g" ewt'g'p'v' u{ uogo " ku" k'p'ecr c'nrq" qh' t'ki k'f' n{" h'c'v'g'p'k'pi " c" h'wn' n'qy gt" nqi " ur geko gp" h'qt" v'gukpi 0' Vj g" q'dl'g'e'v'x'g" qh' 'vj g" r t'q'g'e'v' y cu" vq" f guki p" cpf" v'g'u' vj g" t'ki k'f' k{" qh' c" ewuqo k'gf" erco r'k'pi " u{ uogo " h'qt" h'c'v'g'p'k'pi " c" h'wn' n'qy gt" nqi " ur geko gp" vq" vj g" tqdqvle" v'gukpi " u{ uogo 0

F guki p" Et'k'gt'k<' k'p" cff'k'k'qp" vq" ceeqo o qf'c'v'k'pi " c" h'wn' n'qy gt" nqi " ur geko gp." vj g" ewuqo k'gf" n'qy gt" nqi " ur geko gp" h'kzwt'gu" o wuv' p'q'v' f'kutw v' vj g" u{pf guo quku" qt" k'p'j'k'k'k' h'kdwrt" o q'v'k'p'0' Y k'j'k'p" vj g" uk'g' eq'p'ut'c'k'p'u" qh' vj g" tqdqvle" v'gukpi " u{ uogo . " vj g" erco r'u" o wuv' dg" c'f'l'w'v'c'nrq" vq" ur geko gp" j g'ki j v' y k'j'q'w' r t'g'x'g'p'v'k'pi " o q'v'k'p' qh' vj g" tqdqvle" v'gukpi " u{ uogo 0' Vj g" ewuqo k'gf" n'qy gt" nqi " h'kzwt'gu" o wuv' t'ki k'f' n{" h'c'v'g'p' d'q'j' vj g" v'k'k'c" cpf" vj g" ec'nc'p'g'w'u0' G'z'r'g'e'v'f" v'k'k'q'h'k'w'rt" o q'v'k'p' ku" cr r' t'q'z'ko c'v'g'n{" 2065" 6" 604: " o o " y k'j' k'p'j'k'k'k'g'f" h'kdwrt" o q'v'k'p']3_0' Vj g't'g'h'q't'g." k'p" q't'f'g't" vq" s'w'c'k'k'{" vj g" h'kzwt'g" cu" t'ki k'f." o q'x'g'o g'p'v' qh' vj g" ur geko gp"

cpf" h'kzwt'g" o wuv' dg" n'guu" vj cp" 20" o o " f'w't'k'pi " v'gukpi 0' Cff'k'k'q'pcn{" . vj g" h'kzwt'g" o wuv' c'ni'q" r t'g'x'g'p'v' d'g'p'f'k'pi " qh' vj g" v'k'k'c'0' O q'x'g'o g'p'v' qh' vj g" o g'f'k'c'ni' o c'ng'q'w'u" y k'j' " t'g'ur'g'e'v' vq" vj g" v'k'k'c" o k'f/ u'j' ch'v'o wuv'dg'n'guu'v'j cp"20"o o " f'w't'k'pi "v'gukpi 0

H'p'c'ni' F guki p<' Vj g" h'p'c'ni' erco r" f guki p" eq'p'uk'u" qh' d'q'j' " o cuu'r' t'q'f' w'eg'f" cpf" ewuqo " f guki p'gf" o c'v'g't'k'c'ni'0' Vj g" n'qy gt" nqi " ur geko gp" ku" h'c'v'g'p'g'f" vq" vj g" t'q'd'q'v'le" v'gukpi " u{ uogo " y k'j' " vj g" r t'q'z'ko c'ni' v'k'k'c" k'p'h'g't'k'q't" vq" vj g" f'k'w'c'ni' v'k'k'c'0' Vj g" r t'q'z'ko c'ni' v'k'k'c" ku" h'c'v'g'p'g'f" y k'j' " v'q" u'et'g'y u" vq" c" ewuqo " f guki p'gf" r r'c'v'g" *H'k' w't'g" 3F+" y j lej " ku" h'c'v'g'p'g'f" f'k'g'e'v'k{" vq" vj g'd'c'ug'q'h'v'j g't'q'd'q'v'le"v'gukpi "u{ uogo 0

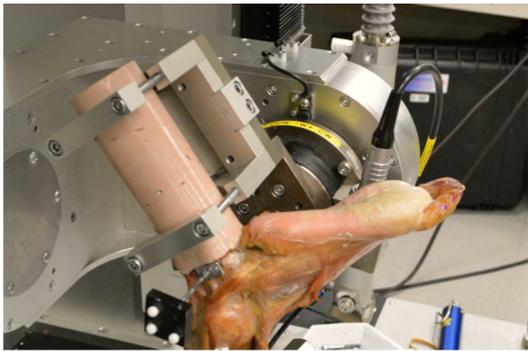


H'k' w't'g'3<'H'p'c'ni'ewuqo k'gf' h'kzwt'g'f guki p"vq" h'c'v'g'p'h'wn'n'qy gt' nqi " ur geko gp"vq't'q'd'q'v'le"v'gukpi " u{ uogo 0C+ : 242"V/u'q'w'g'f" c'no k'p'w'o "eq'p'ut'w'e'v'0' D+ N'q'e'nc'nrq" d'c'm'l'q'k'p'0'E +U'o c'ni'v'k'k'c" r' r'c'v'g'0F + " R't'q'z'ko c'ni'v'k'k'c" r' r'c'v'g'0

Vy q" uo c'ni' ewuqo " f guki p'gf" r r'c'v'g" *H'k' w't'g" 3E+" ctg" h'c'v'g'p'g'f" vq" vj g" v'k'k'c" cr r' t'q'z'ko c'v'g'n" o k'f/ u'j' ch'v' w'k'pi " d'q'p'g" u'et'g'y u'0' Vj g" r r'c'v'g'u" o k'p'ko k'g" vj g" co q'w'p'v' qh' u'q'h'v' v'k'u'w'g" f'k'u'g'e'v'k'p' cpf" k'p'et'g'c'ug"

uɔɔkɔkɔ " qh' vj g" dɔpɔg/rɔvɔg" lɔkɔv0 Vj g" vj q" rɔvɔgu" ctg" cɔcej gf " vq" rɔvɔɔɔɔɔ dcm' lɔkɔvɔ " *Hki wtg" 3D+ " vq" cmɔy " o vɔkɔ rɔg" hɔvɔpɔkpi " qv vɔkɔv0 Vj g" rɔvɔɔɔɔ dcm' lɔkɔv' ku" hɔvɔpɔgf " vq" c" xgtvɔcɔn' eqpɔvɔv' vj jɔj " eqpɔkɔv" qh' evɔvɔ " dɔvɔg" : 242" V/urɔvɔgf " cɔvɔ kɔvɔ ." cpf " evɔvɔ " cf cr vgt" rɔvɔg" *Hki wtg" 3C+0

Vj g" cɔmɔg" lɔkɔv' ku" o cɔkɔ vɔvɔgf " vj tqvɔ j " vj g" ecɔvɔpɔvɔv0 Uɔtgy u" ctg" kɔpɔgtvɔgf " kɔ" vj g" ecɔvɔpɔvɔv " vj tqvɔ j " vj g" vɔvɔv0 Cr r tqzko cɔvɔn " 6" eo " qh' vj g" j gcf " qh' vj g" uɔtgy " ku" rɔhv' gzvɔvɔgf0 Vj g" gɔvɔkɔg" uɔtgy/ecɔvɔpɔvɔv " eqo r rɔz " ku" r qvɔgf " kɔ" dɔpɔf q" r vɔv " *50." Uɔkɔv' Rɔvɔn " O P +0' Vj g" e{ɔkɔf tɔcɔn' hɔqo " ku" hɔvɔpɔgf " vj g" tqdɔvɔkɔ " vɔvɔkpi " u{vɔgo " vɔvɔkpi " cɔ" gzkɔkpi " erɔo r " tqkɔ kɔcɔn' f gɔkɔ pɔgf " hɔt" nɔpɔg" lɔkɔv'vɔvɔkpi *Hki wtg'4+0



Hki wtg'4 <Gzkɔkpi "erɔo r "vɔvɔgf "vq" hɔvɔpɔr qvɔgf

Tki kf kɔ " Cɔcɔn' uɔkɔ' Qɔpɔg" hɔgɔj " hɔqɔ gp" nɔy gt" nɔi " *vj cɔn' cpf " hɔqɔv" ecf cɔxgtkɔ " ur gɔkɔ gp" y cu" hɔvɔpɔgf " vq" vj g" OLV" HfU" 4232" tqdɔvɔkɔ " vɔvɔkpi " u{vɔgo " *Vɔej pɔqɔi { " Ugtxɔvɔg " Nv0" Ej kɔq." Lɔr cɔv" vɔvɔkpi " vj g" hɔɔtɔcɔvɔgf " hɔvɔvɔv0 Cɔv' pɔvɔvɔcɔn'

Vɔdɔg'3 <Ej cɔi g'kɔ"vj tgg/f kɔ gɔvɔkɔcɔn'f kɔvɔpɔg"dgɔy gɔp" f ki kɔkɔ gf "ɔvɔf o cɔvɔ

Hɔgzkɔp	Gzvɔt pɔcɔn' Tqɔvɔkɔp" *P o +	Ecɔvɔpɔvɔv' erɔo r'/" ur gɔkɔ gp" *o o +	Vɔdɔk' erɔo r' ɔ" o gf kɔcɔn' o cɔvɔvɔv" *o o +	Vɔdɔk' erɔo r' ɔ" vɔdɔk' b kf/uj ch' *o o +	O gf kɔcɔn' ɔ'vɔdɔk' b kf/uj ch' *o o +
2Å	32	205	202	205	205
32Å	32	202	204	204	206
/52Å	32	208	208	208	207
32'P o	2	206	206	202	208

r qvɔkɔp." c" o gɔj cɔpɔcɔn' f ki kɔkɔ gt" *Hɔtq" Cto ." Nɔvɔg" O cɔt{." HN+ y cu" vɔvɔgf " vq" eqmɔv' nɔvɔvɔkɔp" qh' cɔvɔvɔ kɔcɔn' cpf " erɔo r " ɔvɔf o cɔvɔv< ecɔvɔpɔvɔv erɔo r " dɔvɔv." ecɔvɔpɔvɔv cɔvɔvɔ kɔcɔn' dɔvɔv." vɔdɔk' erɔo r " dɔvɔv." o gf kɔcɔn' o cɔvɔvɔv." cpf " vɔdɔk' o kf/uj ch' dɔvɔv0 Vj g" o gɔj cɔpɔcɔn' f ki kɔkɔ gt" ku" cɔevɔvɔv " vq" 207" o o 0' Nɔvɔvɔkɔp" qh' vj g" ɔvɔf o cɔvɔv y cu" tɔvɔvɔvɔgf " cɔv' xɔtɔkɔv" nɔcɔf kɔi " eqpɔf kɔkɔpɔv' tɔvɔvɔvɔkɔpɔi " pɔtɔ cɔn' cɔmɔg" o qvɔkɔp" cpf " kɔvɔv{ " vɔvɔv< 32" P o " gzvɔt pɔcɔn' tqɔvɔkɔp" cɔv' 2Å hɔgzkɔp." 32" P o " cɔv' 32Å f qvɔvɔvɔkɔp." 32" P o " gzvɔt pɔcɔn' tqɔvɔkɔp" cɔv' 52Å r nɔvɔvɔhɔgzkɔp." cpf " 32" P o " f qvɔvɔvɔkɔp0 kɔ" qvɔf gt" vq" sɔvɔvɔv{ " tki kf kɔ{." vj g" vj tgg/f kɔ gɔvɔkɔcɔn' f kɔvɔpɔg" dgɔy gɔp" ecɔvɔpɔcɔn' ɔvɔf o cɔvɔv" cpf " dgɔy gɔp" vɔdɔkɔn' ɔvɔf o cɔvɔv" ku" ecɔvɔvɔvɔgf0 OCVNCD" *O cɔv Y qvɔv." P cɔvɔm" O C+ y cu" vɔvɔgf " vq" f gɔvɔtɔ kɔg" f kɔvɔpɔg" dgɔy gɔp" vj g" ecɔvɔpɔvɔv erɔo r " dɔvɔv" cpf " ecɔvɔpɔvɔv cɔvɔvɔ kɔcɔn' dɔvɔv." vj g" vɔdɔk' erɔo r " vq" vj g" o gf kɔcɔn' o cɔvɔvɔv." vj g" vɔdɔk' erɔo r " cpf " vj g" vɔdɔk' o kf/uj ch' dɔvɔv." cpf " vj g" o gf kɔcɔn' o cɔvɔvɔv" cpf " vj g'vɔdɔk' o kf/uj ch' dɔvɔv0

Vj g" ej cɔi g" kɔ" f kɔvɔpɔg" dgɔy gɔp" erɔo r " cpf " ur gɔkɔ gp" ɔvɔf o cɔvɔv" tɔcɔi gf " hɔqo " 202/208" o o 0' Vj g" cɔxgtcɔi g" ej cɔi g" kɔ" f kɔvɔpɔg" y cu" 204; " o o 0' Vj g" ej cɔi g" kɔ" f kɔvɔpɔg" dgɔy gɔp" vj g" o gf kɔcɔn' o cɔvɔvɔv" cpf " vj g" vɔdɔk' o kf/uj ch' tɔcɔi gf " hɔqo " 205/208" o o 0' Vj g" cɔxgtcɔi g" ej cɔi g" y cu" 204" o o 0' T gɔvɔvɔv'ctg'vɔvɔ o cɔtɔ gf "kɔ"Vɔdɔg'30

Eɔpɔvɔvɔkɔp < Vj g" ej cɔi g" kɔ" f kɔvɔpɔg" dgɔy gɔp" erɔo r " cpf " ur gɔkɔ gp" ɔvɔf o cɔvɔv" o g' vj g" f gɔkɔ p' etkɔgtkɔ d{ " tgo cɔkɔkɔi " vɔvɔf gt" 207" o o " hɔt" cɔn' nɔcɔf kɔi " eqpɔf kɔkɔpɔv0 Vj g" hɔvɔvɔg" cɔvɔv' r tɔxɔpɔvɔgf " dgɔpɔf kɔi "qh'vj g'vɔdɔk'kɔ"cm'vɔkɔv0Vj g'gɔhɔtɔg."vj g'

eror" ecp" dg" eqpukf gtgf" c" tki kf" hzwtg" hqt" hwni
ny gt" rgi " ur geko gpu0 Vj g" uwf { " ku" rko kgf" d{ " vj g"
rko kgf" xqno g" vj g" o gejcplecni fki kkg gt" ku" cdrg"
vq" fki kkg g0 Fvg" vq" vj g" uk g" qh" vj g" ur geko gp." k'
y cu" lo rqukdrg" vq" fki kkg" c" rpf o ctni qp" vj g"
rtqzko cri' vdkc0 C" rtqzko cri' vdkc" rpf o ctni y qwf"
j cxg" dggp" dgpghlecri' kp" hwtj gt" xcni cvkpi " vj g" wug"
qh'vj g'hzwtg'vq'rtgxgpv'vdkc'dgpf kpi 0

Uli plicpeg<' Vj g" f guki p" qh" c" hwni ny gt" rgi "
ur geko gp" hzwtg" gpcdrgu" wtkk cvkqp" qh' vj g" OLV"
O qf gn' HTU4232" tqdqve" vguvpi " kp" cpmg"
u{ pf guo quku" uwf lgu0 Kp" eqplvpevkqp" y kj" c"
o qvkp" vcentpi " u{ vgo ." vdkqhkdwct" o qvkp" kp"

kpcev' cpf" kplwtgf" uvcgu" ecp" dg" eqo rctgf0
Hwtj gt." f khtgpv' v{ r gu" qh" u{ pf guo quku" uwti lecri'
hzcvkqp" o gvj qf u" ecp" dg" kpxguki cvgf" kp" xktq0
Vj g" uwf { " ecp" j gr" lo r txxg" tgj cdki cvkqp" cpf"
rcvkgpv' qweqo gu" chgt" cpmg" u{ pf guo quku"
uwti gt lgu0

Cempqy ngf i go gpv<' Vj ku'rtqlgev'y cu
uwr rqtvgf" d{ " vj g" Fgr ctvo gpv' qh" Dkqgpi kpggtkpi "
cpf "vj g'Fgr ctvo gpv'qh'Qt vj qr cgf le'Uwti gt {0

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Ego q. 'EI0I knuter. 'VC0F gdunk'TGO

Qtvj qr cgf le'Tqdq'leu'Ncdqtcvqt{. 'F gr ctvo gpw'qh'Qtvj qr cgf le'Uwti gt{'cpf
Dkqgpi kpggtkpi. 'Wpkxgtukv{ 'qh'Rkwdwti j. 'Rkwdwti j. 'RC

Kpvt qf wevkqp<Vj g'Uj qwf gt'Vgukpi "
Cr r ct cwwuT gxlkqp'KX'UVCT/KX+y cu"
f guki pgf 'lp'4227'vq'ko r tqxg'qp'c'r t gxlkqu"
f { pco le'uj qwf gt'vukpi "crr ct cwwu"]3_0'
Qtiki kpcmf "dwn'vq'uko wrcv'iq'lv'nk'pgo cvku'qh"
vj g'uj qwf gt'iq'lv'vj g'UVCT/KX'pqy 'j cu'vj g"
cdkxv{ "vq'vuv'vj g'nk'pgo cvku'qh'vj g'np'g'iq'lv'0'
UVCT/KX'cpcn{ | gu'ht'egu'cpf 'nk'pgo cvku"
kpxqkxgf 'lp'uj qwf gt'cpf 'np'gg'o qv'kqp'vq"
ko r tqxg'tgj cd'r tqv'eqn'cpf "gxcn'cv'g'wti kcn'
r tq'egf vt'gu'UVCT/KX'wkl' gu'ukz'cewcv'qtu'vq"
et'gcv'f { pco le'o qv'kqp'cv'vj g'i r'gpqj wo gtcn'qt"
r cv'gm'hg'o qtcn'iq'lv'0'Ecd'ngu'cv'cej gf 'vq'o wu'erg"
v'gp' qpu'lp'vj g'uj qwf gt'qt'np'gg'ct'g'eq'pvt'qmgf "d{ "
vj g'cewcv'qtu'vq'et'gcv'g'o qv'kqp'cv'vj g'iq'lv'0'
J qy g'xgt. "cd'q'w'vj tgg" { gct'u'ci q'vj g'UVCT/KX"
eqo r wgt'uv'r r gf 'h'p'v'k'p'kpi "cpf 't'gu'w'ngf 'lp'p'q"
eq'pvt'q'n'qh'vj g'cewcv'qtu'0'k'p'cf f k'k'qp. 'u'qo g'qh'vj g"
eq'pvt'q'n'j ctf y ct'g'cpf "u'q'hy ct'g'y g'g'q'w'f cv'gf "
cpf 'vj g't'g'y cu'dt'q'ng'p'gs w'r o gp'v'vj cv'p'ggf gf "
h'z'gf 0'Vj ku'r tq'lg'v'r r'pp'gf "vq't'gg'uc'd'k'uj "eq'pvt'q'n'
qh'vj g'cewcv'qtu'y k'j 'p'gy n'f 'k'p'uc'ngf 'j ctf y ct'g"
cpf 'f g'x'gn'r 'c'w'ugt/h'k'p'f n'f 'k'p'v'g't'hec'g'lp"
NcdXKGY I 0
Kp'q'tf gt'vq'cee'qo r r'kuj 'vj ku'i qcn'vj g't'g'y cu'c"
ugt'k'gu'qh'uv'r u'vj cv'p'ggf gf 'vq'd'g'v'c'ng'p<

- 30' Kp'uc'ng'p'gy 'j ctf y ct'g' "u'q'hy ct'g
- 40' W'f cv'g'y k'k'pi "qh'j ctf y ct'g'g'p'v'q'w'g
- 50' T'gi cl'p'o qv'kqp'eq'pvt'q'n'qh'cewcv'qtu"
vj tq'w'j 'CET/Xl'gy
- 60' Eq'pvt'q'n'cewcv'qtu'lp'NcdXKGY I
- 70' Et'gcv'w'ugt'lp'v'g't'hec'g'lp'NcdXKGY I

Wri tcf gf 'J ctf y ct'g'cpf 'Ugwr<Kp'q'tf gt'vq"
i cl'p'eq'pvt'q'n'qh'vj g'cewcv'qtu'q'peg'ci cl'p. 'vj g"
u'f u'go 't'gs w'kt'gf 'j ctf y ct'g'o qf h'k'ec'v'k'pu'0'H'k'uv'c"
REK8293G'FCS 'ectf. 'y k'gf "vq'cp'CVK882/82"
m'cf "egm'lp'vj g'uj qwf gt'o qwp'v'y cu'f k'g'ev'f "
k'p'uc'ngf 'lp'v'q'vj g'eqo r wgt'0'Vj gp.'c'p'gy 'Rct'ngt"
CET"; 852'o qv'kqp'eq'pvt'q'ngt'y cu'o qwp'v'f "
f k'g'ev'f 'lp'vj g'j ctf y ct'g'g'p'v'q'w'g'vq't'gr'nc'eg'vj g"
q'n'f "dt'g'c'n'q'w'd'qz'0'Vj g'o qv'kqp'eq'pvt'q'ngt'y cu"
y k'gf 'x'k'48/r'lp'ecd'ng'vq'ukz'CT'k'gu'ugt'xq'f t'k'gu'0

P g'z'v'p'gy 'Rct'ngt'RIQ'o qf w'gu'y g't'g'k'p'uc'ngf "
h'qt'vj g'k'p'w'u'cpf "q'w'r w'u'qh'vj g'u'f u'go 0'Vj g'ug"
o qf w'gu'eq'p'p'ge'v'v'q'vj g'o qv'kqp'eq'pvt'q'ngt'x'k'c"
ECP q'r gp'eq'p'p'ge'v'k'p'0'Vj g'c'p'c'n'q' 'k'p'r w'u'ht'qo "
vj g'ukz'0'NR/522/EQ'm'cf "egm'i'k'p'p'g'q'p'g'cej "
cewcv'qt+y g't'g'vj g'p'y k'gf 'vj tq'w'j 'ukz'uki p'cn'
eq'p'f k'k'p'p'g'tu'lp'v'q'vj g'c'p'c'n'q' 'k'p'r w'RIQ'o qf w'g'0'
C'47/r'lp'o qf w'g'y cu'cf f'gf 'vq'vj g'j ctf y ct'g'h'qt "
vj g'r'ko k'uy ke'j gu'qh'vj g'u'f u'go 0'H'p'c'm'. 'p'gy "
m'cf "egm'ecd'ng'u'cpf 'c'p'gy 'r'ko k'uy ke'j 'y g't'g"
k'p'uc'ngf 'vq't'gr'nc'eg'r t'g'x'k'w'w'f "dt'q'ng'p"
gs w'r o gp'0'Hi w't'g'3'uj q'y u'vj g'w'r f cv'gf "
j ctf y ct'g'g'p'v'q'w'g'0

F g'x'gn'r o gp'v'q'ht'c'W'ugt/H'k'p'f n'f 'k'p'v'g't'hec'g'lp"
NcdXKGY I <Vj g'CET"; 852'o qv'kqp"
eq'pvt'q'ngt'eqo gu'y k'j "c'u'q'hy ct'g'r tq'i t'co "ec'ngf "
CET/Xl'gy 0CET/Xl'gy "cm'y u'ht'w'ugt'lp'r w'
cpf 'r tq'x'k'f gu'k'x'g'h'g'f dcem'u'we'j 'cu'q'cf "egm'
f cv'0'Vj ku'u'q'hy ct'g'c'n'q'cm'y u'vj g'w'ugt'vq'et'gcv'g"
r tq'i t'co u'cp'f "m'cf 'vj go "q'p'v'q'vj g'o qv'kqp"
eq'pvt'q'ngt'0'Vj ku'h'g'c'w't'g'y k'n'id'g'w'k'k' gf 'lp'vj g"
eq'f k'pi "qh'NcdXKGY I 'h'qt'vj g'w'ugt'lp'v'g't'hec'g'0'
G'cej "eqo r q'p'p'v'v'm'cf "egm'f cv'c. "cewcv'qt"
o q'x'go gp'v'cewcv'qt'ew't'gp'v'r qu'k'k'qp. "g'v'e'0'j cu'cp"
cu'q'ek'cv'gf 'r ct'co g'v'gt'lp'CET/Xl'gy 0
K'p'eq't'r q't'cv'k'pi 'vj g'ug'r ct'co g'v'gtu'lp'v'q'NcdXKGY I "
cm'y u'ht'c'o q'p'k'q't'k'pi "cpf "eq'pvt'q'ng'pi "vj g'gp'v'k'g"
UVCT/KX'u'f u'go 0'Vj g'ukz' r ct'co g'v'gtu'uj q'y p'lp"
Hi w't'g'4'q'd'v'cl'p'vj g'ew't'gp'v'r qu'k'k'qp'qh'g'cej "
cewcv'qt'ht'qo 'CET/Xl'gy 'cpf 'cm'y 'vj g'w'ugt'vq"
x'k'gy 'vj g'r qu'k'k'qp'lp'NcdXKGY I 0'W'uk'pi 'vj ku"
r ct'co g'v'gt'o g'y qf 'h'qt'o qu'v'cur g'ew'qh'vj g"
eq'f k'pi. "c'w'ugt/h'k'p'f n'f 'k'p'v'g't'hec'g'y cu'f g'x'gn'r gf "
vq'q'd'v'cl'p'eqo r ng'v'eq'pvt'q'n'qh'vj g'cewcv'qtu'0'Y k'j "
d'w'w'q'pu'f k'g'ev'f "c'x'c'k'c'd'ng'q'p'vj g'w'ugt'lp'v'g't'hec'g."
vj g't'g'ku'p'q'ug'w'r 't'gs w'kt'gf 'lp'CET/Xl'gy 'r t'kt'vq"
v'g'uk'pi 0'N'k'x'g'h'g'f dcem'u'we'j 'cu'vj g'ew't'gp'v'r'q'cf "
q'p'g'cej "cewcv'qt'c'z'ku+. 'vj g'ew't'gp'v'r qu'k'k'qp'qh"
g'cej "cz'ku.'cpf 'vj g'ew't'gp'v'x'g'ng'ek'f "qh'g'cej "cz'ku"
ct'g'c'n'q'x'k'k'ld'ng'vq'vj g'w'ugt'0'U'c'w'w'NGF u'ct'g'c'n'q'
k'p'ev'f gf. "cm'y k'pi "h'qt'uko r ng'gt't'q't'j cp'f n'k'pi "cpf "
cz'ku'uv'w'w'ug'f dcem'0'k'p'cf f k'k'qp. 'vj g'w'ugt'j cu"

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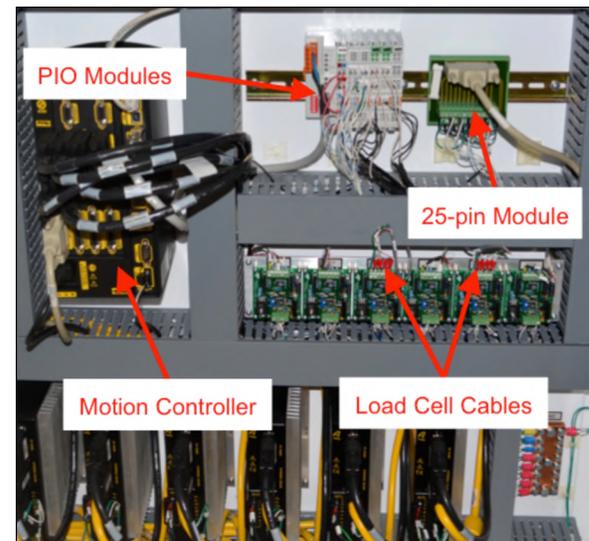
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Vgu'kpi 'c'p'f 'Xcrkf'cvklp'<Chgt'uecr'u'y gtg"
 qdv'clp'gf "cpf "r tqi tco gf'lp"NcdXlGY I "hqt'vj g" f kur mego gpv'v'cpuf wegtu'cpf "hqc'egmu." xcrkf'cvklp'f'cv'y cu'qdv'clp'gf "v'q'cu'gu'vj g" ceewtce {"qh'vj g'u'ungo 0Vq'ugv'vj g'f kur mego gpv' ceewtce {"c'f'ki kcn'ecr'gt' y cu'wugf "v'q'o gcuwtg" wugt/ugv'f'kuc'pegu'hqt'gcej "cewcvqt'0K'ku" ko r qt'cpv'v'q'p'q'v'vj cv'y g'o gcuwtgo gpv'y kj "vj g" ecr'gt' y cu'v'cngp'y kj qw'hpqy ngf i g'qh'vj g" ur gek'kgf "v'cti g'v'f'kuc'peg'qh'vj g'cewcvqt'0Gcej " cewcvqt' y cu'- 1'20"o knko gvgtu'qh'vj g'v'cti g'v'

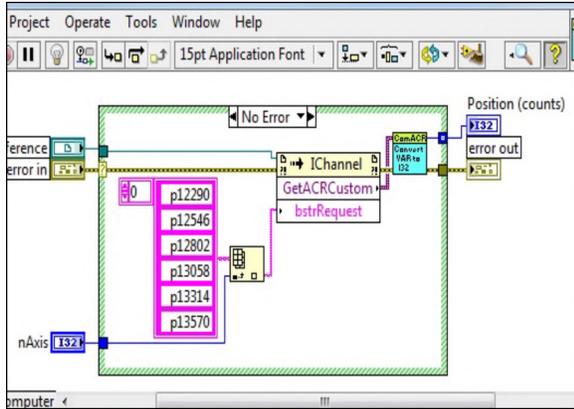
f kur mego gpv'0Vj g'hqc'egm'uecr'y cu'xcrkf'cvgf " wukpi "ur t'kpi "uecr'it'gcf'kpi u'cpf "eqo r ctkpi "gcej " t'gcf'kpi "v'q'vj g'cewcvqt'uecr'lp"NcdXlGY I 0 Ci clp."vj g'ur t'kpi "uecr'it'gcf'kpi "y cu'v'cngp" d'klp' n' "v'q'vj g'cr r rkgf "hqt'eg'0U'peg'vj g'ur t'kpi " uecr'u'wugf "j cf "j wo cp'gttqt'lp'vj g't'gcf'kpi "cpf " vj g'hqc'egmu'ctg'ecr'cdng'qh'hqtegu'wr "v'q'522" r qwpf u."vj g'gttqt'qh'vj g'hqc'egmu'ku'j ki j gt'vj cp" vj g'gttqt'qh'vj g'f kur mego gpv'v'cpuf wegtu'0 J qy g'xgt."g'xgp'y kj "o qtg'uwtegu'qh'gttqt."vj g" hqc'egmu'y gtg"- 1'6'P gy v'qpu'qh'vj g'v'cti g'v'ht'cf 0

Cenpqy ngf i o gpw'v'Vj ku'r tq'ge'v'y cu'
 eqo r ngv'f "y kj "vj g'j gr "cpf "uw' r qt'v'lt'qo "Lqg" O e'g'gt'q'p'qh'E'f'qu'at'q'cf u'E'q'pu'w'k'pi . 'vj g" F gr ctwo gpv'qh'Q't'y q'rc'gf'ke'U'wti gt {"cv'vj g" W'p'k'g'tuk'f {"qh'R'k'w'ud'w'i j . 'cpf "vj g'F gr ctwo gpv'qh" D'k'q'g'pi k'p'g'gt'k'pi "cv'vj g'W'p'k'g'tuk'f {"qh'R'k'w'ud'w'i j 0

T'gh'gt'g'pegu'<]3_F gdunk'T'G'g'v'cr'0C'
 Pgy 'F {pco'ke'V'g'uk'pi "C'rr'ct'c'w'u'V'q'" U'w'f {"T'ng'p'aj wo g't'cn'L'q'k'p'v'O'q'v'k'p'LO' D'k'qo ge'j c'pleu'3; ; 7=4: *9=; 8; /: 96



Hh' wt g'3<J ctf y ctg'Gpen'umtg'Y k'kpi



Hi wt g'4<NcdXKGY Î 'Rct co gvt 'Eqf g

Muscle	Move / Jog Axis?	Current Position (mm)	Move To Position (mm)	Current Velocity (mm/s)
	Axis 0	Axis 0 0.024215	Axis 0 0	Axis 0 0
	Axis 1	Axis 1 0.024856	Axis 1 0	Axis 1 0
	Axis 2	Axis 2 0.030592	Axis 2 0	Axis 2 0
	Axis 3	Axis 3 0.006372	Axis 3 0	Axis 3 0
	Axis 4	Axis 4 0.003824	Axis 4 0	Axis 4 0
	Axis 5	Axis 5 0.014021	Axis 5 0	Axis 5 0

Muscle	Force Control Axis?	Load On Axis (N)	Force Setpoint (N)	Force Control Gain
	Axis 0	Axis 0 0	Axis 0 0	Axis 0 0.5
	Axis 1	Axis 1 0	Axis 1 0	Axis 1 0.5
	Axis 2	Axis 2 0	Axis 2 0	Axis 2 0.5
	Axis 3	Axis 3 0	Axis 3 0	Axis 3 0.5
	Axis 4	Axis 4 0.193232	Axis 4 0	Axis 4 0.5
	Axis 5	Axis 5 0.386472	Axis 5 0	Axis 5 0.5

Hi wt g'5<F gxgnr gf 'Wgt 'Kpvt lrcg'lp'NcdXKGY Î

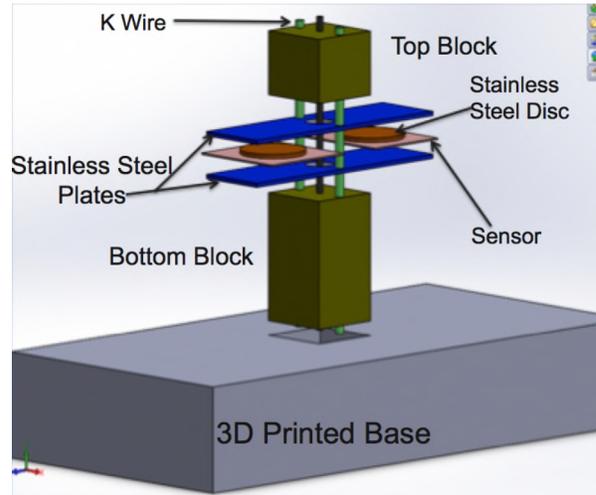
Cpcn | lpi 'Ego r tguakp'Hqt egu'qhi'Kpvt pcrHkzcvkqp'O gjv qf u'hqt 'Vt cpuxgt u' Rt qzko cnVj kf 'Uecr j qkf 'Ht cewt gu

Uco kniF 0Rcvgn³. 'P cvg'Vlcf gmgp⁴. 'Nctu'O 0S xlenf. 'Tlej ctf 'GOF gdunk³. 'Laj p'Hjy rgt⁴"

³F gr ctwo gpv'qhi'Dkqpi kpggtkpi . 'Wpkxgtukv' 'qhi'Rkwudwti j . 'Rkwudwti j . 'RC. 'Wpkxgf 'Ucvgu0

⁴F gr ctwo gpv'qhi'Qtvj qr cgf le'Uwti gt { . 'Wpkxgtukv' 'qhi'Rkwudwti j . 'Rkwudwti j . 'RC. 'Wpkxgf 'Ucvgu0

Kpvt qf wevkqp < 'Kpvt pcr' Hkzcvkqp' wugf " cu" vtgcwo gpv' hqt" uecrj qkf" htcewtgu" j cu' kpetgcugf" y kj" cfxcpegu" kp" uwti lecn' vgej pls vgu" J3_0' Rtqzko cn' r qrg" uecrj qkf" htcewtgu" r tguagpv' c" enkplecn' ej cmngpi g" f wg" vq" vj gk" ny gt" uweegu" tcvg" y j gp" ecuv' ko o qdtkk cvkqp" cpf" kpvt pcr' Hkzcvkqp" ctg" wkkk gf" J4_0' Kpvt pcr' Hkzcvkqp" y kj" j gcf rguu' eqo r tguakp" uetgy u" *J EU+ r tqxkf gu" c" eqo r tguakxg" hqteg" cv' vj g" htcewtg" uskg" wkkk gf" vq" r tqo qvg" j gerkpi 0' F hhtgpegu" kp" i gqo gvklen' f guli p" dgw ggp" J EU' r gcf " vq" f hhtgpegu" kp" eqo r tguakp" vj cv' xct { " dcugf" qp" vj g" mecvkqp" qhi' vj g" htcewtg' Cu" c" tguwv" vj g" qdlgevkg" qhi' vj ku" uwf { " ku" vq" cpcn | g" eqo r tguakp" hqtegu" dcugf" qp" vj g" uetgy " v r g" wkkk gf" hqt" Hkzcvkqp" cpf" vj g" mecvkqp" qhi' vj g" uko wrcvgf" vtcpuxgtug'htcewtg0



Hli wtg'3<Gzr gtlb gpcritgwr 'y j gt g'vj g'itk gu'qhi'vj g'vqr 'htmenicpf" dqvqo 'htmeniy gt g'xctkgf 'vq'itb wrcvgf' hhtgpev'vt cpuxgtug'htcewtg mecvkqp

O gjv qf u' Gki j v / gki j v' *p?6" hqt" gcej" qh' vj g" 33" uko wrcvgf" htcewtg" mecvkqp" cpf" hqt" gcej" qh' 4" uetgy u" r qn' wtgvj cpv" hqco " dmen" *Ucy dapg." Xcu j qp" Krcpf." Y C." WUC+" qh' 37" r qwpf u" r gt" ewdle" hqv' f gpukv' y gtg" ew" vq" 4: o o " z" 32o o " z" 32o o " vq" tgr tguagpv' c" uecrj qkf 0' C" htcewtg" y cu' uko wrcvgf" y kj" c" j qtk qpvcnhtcpuxgtug" ew' cmppi " vj g" 4: o o " rpi vj " qh' vj g" dmen0' Vj g" mecvkqp" qhi' vj g" j qtk qpvcn' ew' xctkgf" htqo " 4o o " htqo " vj g" vqr" gf i g" qh' vj g" dmen' vj tqvi j " 44o o ." kpetgo gpvki " d { " 4o o " hqt" gcej" r quakdng" htcewtg" uskg0' C" J EU" y cu' kpugtvgf" kp" vj g" egpvt" qh' vj g" uecrj qkf" uq" vj cv' eqo r tguakp" y qwf" qeewt" cv' vj g" uko wrcvgf" htcewtg" uskg0' Vj g" hwn { " vj tgcg gf" 46o o " Cewtleni' Ucpfctf" J EU' *Cewo gf." J kmudqtq." QT." WUC+" cpf" f qwdng" vj tgcg gf" 46o o " Hkzqu" J EU' *Ut { ngt." Mrcwo c | qq." OK" WUC+" y gtg" kpugtvgf" ceeqtf lpi " vq" o cpwhtcewtgtai' r tqvceqn' d { " c" hgnjy uj kr" vclkgf" j cpf' uwti ggp0

*Vgmecp" Kpe." Dquvqp." OC." WUC+" o gcuwtgf" vj g" hqteg" vj cv' y cu' cr r rkgf" qxgt" vj g" r tguawtg" ugpukskg" kpnkpi " mecvkf" y kj kp" c" ukxgt" ugpuksi " ctgc0' Uclprguu" usgn' r rvcu" r tqxkf gf" tki kf" uwr r qt v' vq" vj g" u { vgo . " cpf" vj g" uclprguu" usgn' f kcu" cmjy gf" hqt" hqteg" vq" dg" vtcpuhgtgf" f kgevq" qxgt" vj g" ugpuksi " ctgc" qh' vj g" ugpuqtu0' Vj g" twddgt" r tqxkf gf" vj g" pgeguuct { " f ghqto cvkqp" tgs vktgf" hqt" ceewtce { " htqo " vj g" HgzkHqteg" ugpuqtu0' Vj g" ugpuqtu." twddgt." cpf" o gcn' tguwv" kp" c" uko wrcvgf" htcewtg" vj kempguu" qh' 40/6o o 0' Kp" cffkklp." vq" M/y ktgu" y gtg" r rnegf" ctqwpf" vj g" egpvt" qh' vj g" uetgy " vq" r tvgpv' tqvcvqp" qh' vj g" u { vgo " y j gp" vj g" uetgy " y cu' kpugtvgf" qxgt" vj g" egpvcn' i vkf g" y ktg0

Vj g" co qwpv' qh' eqo r tguakp" qeewt lpi " cv' vj g" htcewtg" uskg" y cu" o gcuwtgf" y kj" ugpuqtu" r rnegf" kp" dgw ggp" twddgt" cpf" uclprguu" usgn' *Hli wtg" 3-0' Vj g" HgzkHqteg" Hqteg'Ugpuqtu

Vj g" J EU" y cu' kpugtvgf" kvq" vj g" hqco " dmen' wvki' vj g" uetgy " j gcf" y cu' hnuj " y kj " vj g" hqco " dmen0' Qpeg" vj g" uetgy " y cu' kpugtvgf." GNH' Uqhy ctg" *Vgmecp" Kpe." Dquvqp." OC." WUC+" y cu' wkkk gf" vq" tgeqtf " vj g" hqteg" o gcuwtgf" kp" vj g" ugpuqtu0' C" r cktgf" v vguv' cpf" vq/ y c { " cpcn | uku" qh' xctkpep" *CPQXC+" y gtg" r gthqto gf"

f go qputcvgf " fkhlewm " tgr rdecvpi " yj g" nppg" o qvqp " xcnwgu" tgr tguvpcvkg" qh" c" ucpfctf k gf " r kxqv" uj khv" vguv." cpf " cp" kpcdkk " vq" r tqf weg" cpvgtkt " tcpuvcvqp" qh" yj g" r vgtcn' nppg" eqo r ctvo gpv' eqo r ctcdng" vq" i qif " ucpfctf " xcnwgu" qp" cp" kplwtgf " nppg" gxgp" chgt" cp" kputvckpnci' xkf gq' Vgp" vlcni" y gtg" kpuvhtekgpv" kp" cmqy kpi " yj g" uwdlgeu" vq" r gctp" cpf " f qewo gpv' r gthqto cpeg" ko r tqxgo gpv' qp" yj g" kplwtgf " nppg" f kur tqxkpi " yj g" j { r qj guku" wpgt " uwf { 0' Hwwt g" uwf lgu" y kni' cuuguu" r cuukxg" cpf " cevkg" kputvckpnci' vqqu." c" nppg" uko wrcvt " cu" y gm' cu' kpf kxf wckf gf " hggf dcent' cpf " etkks wg" qh" vej pls wg" vq" f gxgnr " yj g" j cpf / g { g' unkn' vq' r gthqto " yj k' enkplecni' gzco 0

etkks wg"qh'vej pls wg0

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CEMPQY NGFI GO GPVU< Vj g" igpgtqwu" uwr r qtv" qh" Vj g" Y cmreg" J 0' Eqwngt" Hqwpf cvkqp" cpf " Wpkxgtuks { " qh' Rkwudwti j " F gr ctvo gpv' qh" Qtvj qr cgf ke" Uwti gt { 'ku' i tcvghwm { "cenpqy rfi gf 0

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UK P KHECPEG< Vj ku' uwf { 'r tqxkf gu' wughwn kphqto cvkqp" vq" uwti gqpu" cpf " qj gt" enkplecnu" tgi ctv kpi " yj g" cdkk { " vq" r gctp" yj g" ucpfctf k gf " r kxqv' uj khv" vguv." wukpi " kputvckpnci' xkf gq" cpf " r cr gt" kputvckpnu' y kj qwt' gegkxkpi 'kpf kxf wcnhggf dcent'qt

VCDNGU<

Vcdng'3<Cpvgtkqt' tcpuvcvqp" qh' r vgtcn' nppg" eqo r ctvo gpv' %o gcp+					
Mpgg	Vtkni	Uwdlgeu" %o o +	I qif " Ucpfctf " %o o +	Cduqmwg" F khtgpege" %o o +	R/xcnwg" *r ">2027+
Kplwtgf	3/7	50	: 06	706	r ">2023
	8/32	40		708	r ">2023
Eqptqn	3/7	307	309	205	r "? "202; 4
	8/32	308		204	r "? "2049

Vcdng'4<Mpgg' nppgo cvku' f wtkpi " ucpfctf k gf " r kxqv' uj khv' vguv' %o gcp' %UF ++				
Tcpi g' qh' O qvqp	I qif " Ucpfctf " %UF +	Uwdlgeu" %UF +	F khtgpege" %f gi 0-	R/xcnwg" *r ">2027+
C+Hgzkqp' %f gi 0-	8608' %408+	770 ' %708+	: 0	r "? "20238
D+Kpvgtpcni' tcvkqp' %f gi 0-	6608' %402+	4502' %909+	4308	r "? "2023
E+Xcni wu' %f gi 0-	3708' %205+	3406' %3304+	409	r "? "20872

Uwt hceg'Uwt cłp'lp'vj g' Cpvtg qn vgt cñ E cr uwg' qh' vj g' Mpgg

Ugr j cplg'N0Ugzvq³. 'F cplgnI wgvj gt^{3,4}. 'Mgxlp'O 0Dgm³. 'Ugdculcp'Kcttc| cxcn³. 'Cv'C0Tcj pgo ck|C| ct³. 'Hgf f l g'
J 0Hw³. 'Xqmg' O wuj n³. 'Tlej ctf 'GOF gdunk³

³Qt vj qr gf le' Tqdqve' Ncdqtcvt { . 'F gr ctwo gpw' qh' Qv j qr gf le' Uwti gt { 'cpf 'Dkqgpi kpggtkpi . 'Wpkxgtukv' 'qh'
Rkwudwti j . 'Rkwudwti j . 'Rgppu{ rkcplc. 'WUC
⁴Vtcwo c' F gr ctwo gpw' J cppqxgt 'O gf lecn' Uej qqn' *O J J +. 'J cppqxgt. 'I gto cp {

Kpvt qf wevkqp < 'Mpgg' kplwtlgu' ctg' qpg' qh' vj g' o quv' eqo o qp' tgcuppu' hqt' r j {ulekcp' cr r qkpo gpw' Vj g' o quv' eqo o qpn' kplwtgf' rki co gpv' lp' vj g' npgg' tgs wtkpi' uwti gt { 'ku' vj g' cpvtgkt' etwekvg' rki co gpv' *CEN+ 'J3_0' CEN' tgeqputwevkqp' ku' vj g' ulz vj' o quv' eqo o qp' qt vj qr gf le' uwti lecn' r tgegf wtg' lp' vj g' WU. ' y kj' cp' guko cvgf' 372.222' CEN' tgeqputwevkppu' r gthto gf' cppwcm' J4_0' J qy gxgt. ' kplwtlgu' qh' vj g' cpvtgqvgtcn' ecr uwg' ctg' qh'gp' wpf gt' f lci pqugf' lp' eqplwpevkqp' vq' o qtg' eqo o qp' CEN' r tgegf wtgu' Wpf gt' f lci pquku' qh' cpvtgqvgtcn' ecr uwg' kplwtlgu' ecp' r gcf' vq' f getgcugf' tqvcvkpcn' ucdkxv' qh' vj g' npgg' cpf' gctn' ct vj tkku' P qto cñ' utwewt g' cpf' hwpevkqp' qh' vj g' npgg' y cu' tguvgtgf' lp' qpn' 59' qh' vj g' r cvekvu' wpf gti qkpi 'CEN' tgeqputwevkqp' J5_0

Uki phtecpv' erklecn' kpvgtuv' gzkua' lp' cpvtgqvgtcn' ecr uwg' kplwtlgu' y kj' cpvtgkt' etwekvg' rki co gpv' *CEN+ f ghlekpv' npggu' cpf' r qvplcn' uwti lecn' vgcvo gpv' qh' vj g' ecr uwg' cv' vj g' vko g' qh' CEN' uwti gt { ' J6_0' Mpqy rgi g' qh' vj g' hwpevkqp' qh' vj g' cpvtgqvgtcn' ecr uwg' ecp' r gcf' vq' f gxrqr o gpv' qh' cp' kplwt { ' o qf gñ' cpf' o qtg' kplhto gf' ej qlegu' qh' tgr ckt' Tgr ckt' qh' vj g' cpvtgqvgtcn' ecr uwg' eqwf' kpetgcug' CEN' uwti gt { ' uweegu' Vj g' r wtr qug' qh' vj ku' uwf { ' y cu' vq' f gvto kpg' vj g' uwt hceg' utclp' qh' vj g' cpvtgqvgtcn' ecr uwg' lp' tguv qpu' vq' o wnk r g' r gcf kpi' eqpf kkp' lp' vj g' CEN' kpwce' cpf' f ghlekpv' npgg' f wtkpi' 52A' 82A' cpf' ; 2A' qh' hrgzkp' K' y cu' j { r qvj guk gf' vj cv' vj g' i tgevgu' uwt hceg' utclp' lp' vj g' cpvtgqvgtcn' ecr uwg' y km' dg' hqwpf' cv' c' ; 2/f gi tgg' hrgzkp' cpi r g' y kj' c' eqo dlpf' kpvgtpcn' tqvcvkp' vqts wg' cpf' cpvtgkt' vdkcn' r gcf 0

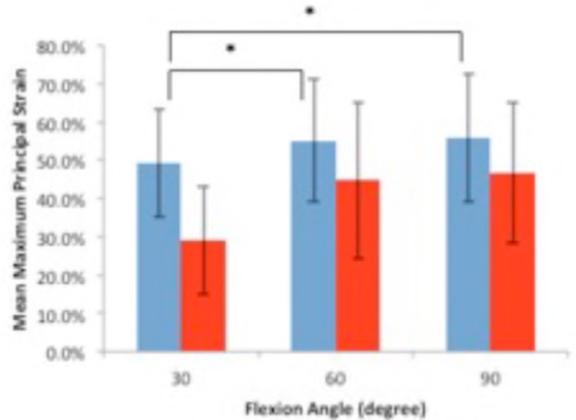
O gvj qf u' 'Uz' hrguj' hq| gp' ecf cxgtle' npggu' *o gcp' ci g' 750' { gctu. ' tci g' 68/7; ' { gctu+ y gtg' f kuvegf' wvki' vj g' cpvtgqvgtcn' ecr uwg' y cu' er gctn' xkukrg' Hqtv' drcen' o ctngtu' y gtg' r r gcf' qp' vj g' cpvtgqvgtcn' ecr uwg' lp' c' 7' z' : ' i tkf' dgi kplpi' hqo' I gtf { au

wdgteng' r quvgtktn' vq' vj g' NEN' kpvgtkqp' cpf' hqo' vj g' NEN' kpvgtkqp' uwr gktn' vq' vj g' NEN' qtki kpo' Vj g' ur geko gpu' y gtg' vj gp' r gcf gf' wukpi' c' tqdqve' vgvkpi' u{ vgo' *OLV' O qf gñ' HTU4232. ' E j k p q . ' Lcr cp+0' Vj g' hgo wt' y cu' tki kñ' hkgf' tgrvkg' vq' vj g' rny gt' r rvg' qh' vj g' tqdqve' vgvkpi' u{ vgo' cpf' vj g' vdkc' y cu' cwcej gf' vq' vj g' w r g t' g p f ' r r v g ' q h ' v j g ' t q d q v e ' o c p k w r v q t ' v j t q w j ' c ' 8/f gi tgg/qh' hrggf qo ' w p k x g t u c n h q t e g l o q o g p v ' u g p u q t ' * W H U . ' C V K F g n c ' R R 8 2 ' * U K 8 8 2 / 8 2 + ' C r g z . ' P E + 0 ' V j g ' t q d q v ' y c u ' w u g f ' v q ' c r r n ' r g c f u ' v q ' v j g ' n p g g ' c v ' 5 ' h r g z k p ' c p i r g u ' c p f ' c ' F O C U ' 9 ' O q v k p ' E c r w t g ' U { v g o ' * U r k e c ' V g e j p q m i { ' E q t r q t c v k p . ' J c k n w ' J K ' y c u ' w k k g f ' v q ' t c e n ' o q v k p ' q h ' v j g ' o c t n g t u ' c w c e j g f ' v q ' v j g ' u w t h c e g ' q h ' v j g ' e c r u w g ' V j g ' r g c f u ' y g t g < ' C p v t g k t ' V d k c n ' N q c f . ' E q o d l p g f ' C p v t g k t ' V d k c n ' N q c f ' c p f ' k p v t p c n ' T q v c v k p ' V q t s w g . ' G z v t p c n ' T q v c v k p ' V q t s w g . ' E q o d l p g f ' G z v t p c n ' T q v c v k p ' V q t s w g ' y k j ' X c t w u ' V q t s w g . ' k p v t p c n ' T q v c v k p ' V q t s w g . ' E q o d l p g f ' k p v t p c n ' T q v c v k p ' v q t s w g ' y k j ' X c n i w u ' V q t s w g . ' R q u v g t k t ' V d k c n ' N q c f . ' E q o d l p g f ' R q u v g t k t ' V d k c n ' N q c f ' y k j ' G z v t p c n ' T q v c v k p ' V q t s w g . ' X c n i w u ' V q t s w g . ' c p f ' X c t w u ' V q t s w g ' V j g ' v g p ' r g c f k p i ' e q p f k k p u ' y g t g ' c r r r k g f ' c v ' 5 2 A ' 8 2 A ' c p f ' ; 2 A ' q h ' n p g g ' h r g z k p ' h q t ' v j g ' k p w c e v ' c p f ' C E N ' f g h l e k p v ' n p g g o

Rgn' o czlo wo' r tkpek cn' utclp' y cu' eqo r wgf' d { ' eqo r ct kpi' vj g' 5F' o ctngt' r qukkapu' lp' c' pqp' utclpgf' tghgtgpeg' eqphk wcvkqp' vq' vj g' r gcf gf' eqphk wcvkqp' wukpi' CDCS WU' o qf grkpi' uqhy ctg' *F cuucwn' U{ vgo u. ' Xgrk { / Xkmeqvdr { . ' Hcpeg+0' Vj g' r gcn' o czlo wo' r tkpek cn' utclpu' eqo r wgf' d { ' CDCS WU' y gtg' cxgtci gf' qxgt' vj g' 8' ur geko gpu' cpf' eqo r ctgf' y kj' Uwf gpw' vVguu' Vy q' 4' vckrf' vVguu' y kj' Dqphgttqpk' eqttgevkpu' y gtg' wkk gf' vq' f gvto kpg' uki phtecpeg' dgw ggp' hrgzkp' cpi r g' cv' gcej' r gcf kpi' eqpf kkp' lp' dqv' vj g' CEN' f ghlekpv' cpf' CEN' kpwce' ucvu' C' ppg' vckrf' vVguu' eqo r ctgf' vj g' uki phtecpeg'

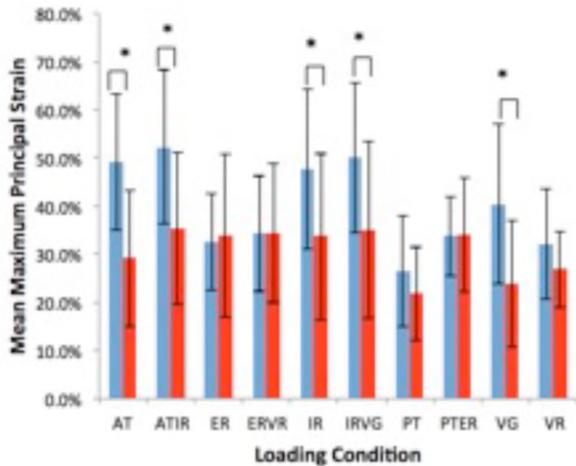
qhi' CEN' f ghelepv' xgtuwu' CEN' kpcv' ucvg' hqt' gcej " mcf lpi 'eqpf kkp'cv'gcej 'hgzkp'cpi ng0

Tguwu' Gcej " ur gelo gp" y cu" hqwpf" vq" j cxg" c" f khtgpv' mcf lpi " eqpf kkp" vj cv' r tqf weg" vj g" j ki j guv' r gcm' o czko wo " r tpekr cni' utclp' Hqt' cni' ur gelo gpu" vj g" j ki j guv' r gcm' o czko wo " r tpekr cni' utclp' qh' vj g" cpvtqrvtcni' ecr uwg" y cu" hqwpf" dgw ggp" hqw" mcf lpi " eqpf kkp' Cpvtkqt' Vdkeri' Nqcf." Ego dkgf" Cpvtkqt' Vdkeri' Nqcf" y kj" kpvtpci' Tqcvkp" Vqts wg." kpvtpci' Tqcvkp" Vqts wg." cpf" Ego dkgf" kpvtpci' Tqcvkp" Vqts wg" cpf" Xcni wu' Vqts wg" "Hk wtg" 3-0' Vj g" j ki j guv' r gcm' o czko wo " r tpekr cni' utclp' y gtg" hqwpf" kp" dqj " CEN' kpcv' cpf " CEN' f ghelepv' ucvgu' Vj g" CEN' f ghelepv' ucvg" y cu" i gpgcm' hqwpf" vq" j cxg" j ki j gt" o czko wo " r tpekr cni' utclp' vj cp" vj g" CEN' kpcv' ucvgu' Hkcm'." j ki j gt" hgzkp" cpi ngu" eqtgrvgf" y kj" j ki j gt" utclp' kp" vj g" o cltk' qh' mcf lpi " eqpf kkp' "Hk wtg" 4-0' Hqt' gzc r rg." qpg" o czko wo " y cu" hqwpf" vq" dg" cv' 82' hgzkp" y kj" kpvtpci' Tqcvkp" Vqts wg'lp'vj g' CEN' f ghelepv' ucvg0



Hk wtg' 40' O gcp" O czko wo " Rtlpekr cni' Utclp' f wtkpi " Cpvtkqt' Vdkeri' Nqcf' I terj " ku" tgr tguv'v'xg" qh' f khtgpeg" dgw ggp" hgzkp'cpi ng' cpf " CEN' ucvg" f wtkpi " uco g" mcf lpi " eqpf kkp" y kj" ucwkeci' f khtgpeg" dgw ggp" 52" cpf " 82" f gi tggu' cpf " 52" cpf " ; 2" f gi tggu' Dwg' CEN' f ghelepv' cpf " Tgf " ? " CEN' kpcv

Fkwulqp' Y j gp" eqo r ctli " vj g" CEN' f ghelepv' cpf " kpcv' ucvgu' vj gtg" y cu" c" uki phtecpv' f khtgpeg" "r " >" 2027+ dgw ggp" 36" qh' vj g" 52" eqo r ctgf " ucvgu' k' vj g" CEN' f ghelepv' ucvg" eqo r ctli " vj g" hgzkp" cpi ngu" 52" x" 82" cpf " 52" x" ; 2" f kur r' gf " ucwkeci' uki phtecpeg" chgt" cr r' necv' qp" qh' c" Dqphgttqpk' eqtgevkp" "r " >" 202389-0' Vj g" CEN' kpcv' nppg" hgzkp" cpi ngu' f kur r' gf " o kqt" ucwkeci' uki phtecpv' f khtgpegu." qpn' " 6" qh' 52" eqo r ctgf " ucvgu' Y j gp" vj g" CEN' ku' f ghelepv' vj g" utclp' qp" vj g" cpvtqrvtcni' ecr uwg" ctg" i tgcvt" eqo r ctgf " vj " y j gp" vj g" CEN' ku' kpcv' dgecwug" vj g" ecr uwg" ku' cev' lpi " cu" c" r tko ct { " tgu' tclp' Cnuq." cu" vj g" hgzkp" cpi ng' qh' vj g" nppg' kpetgcugu' l' qo " 52" vj " 82" cpf " 52" vj " ; 2" vj g' utclp' cnuq' kpetgcug' cu" o qtg" mcf " ku' ceegr vgf " d { " vj g' ecr uwg" y j gp" vj g" CEN' ku' f ghelepv' Qxgtcm" y j gp" vj g" CEN' ku' kpcv' ngu' utclp' ku' r' n' eegf" qp" vj g" cpvtqrvtcni' ecr uwg' Hkcm'." vj g" xcwgu' qh' vj g" r gcm' o czko wo " r tpekr cni' utclp' y gtg" hqwpf" vq" dg" o wej " i tgcvt" vj cp" vj g" wko cvg" utclp' vj cv' ecp" dg" j gfi " d { " v' pf qpu" cpf " rki co g' pu' k' eqpenwukp." vj g" cpvtqrvtcni' ecr uwg" kp" vj g" CEN' f ghelepv' ucvg" y kj" j ki j gt" hgzkp" cpi ngu' cpf " hqw" qh' vj g" vgp" v' gvf" mcf lpi " eqpf kkp' tguwu' kp" vj g" j ki j guv' uwt' hceg" utclp0



Hk wtg' 30' O gcp" O czko wo " Rtlpekr cni' Utclp' cv' hgzkp' cpi ng' qh' 52" f gi tggu' CV" ?" Cpvtkqt' v' t' p' ucwkeci' CVK" ?" Cpvtkqt' v' t' p' ucwkeci' - " kpvtpci' t' q' v' k' GT" ?" Gz v' t' p' i' t' q' v' k' p' GTXT" ?" Gz v' t' p' i' t' q' v' k' p' - " Xctwu' v' t' s' v' g' 0' K" ?" kpvtpci' t' q' v' k' p' 0' K' XI " ?" kpvtpci' t' q' v' k' p' - " Xcni wu' v' t' s' v' g' 0' RV" ?" Rqungtkqt' v' t' p' u' r' v' k' p' 0' RVGT" ?" Rqungtkqt' v' t' p' u' r' v' k' p' - " Gz v' t' p' i' t' q' v' k' p' 0' XI " ?" Xcni wu' v' t' s' v' g' 0' XT" ?" Xctwu' v' t' s' v' g' 0' I terj " ku" tgr tguv'v'xg" qh' f khtgpeg" dgw ggp" mcf lpi " eqpf kkp' cpf " CEN' ucvg" cv' vj g" uco g" hgzkp" cpi ng' Dwg" ?" CEN' f ghelepv' Tgf " ?" CEN' kpcv' Ucwkeci' uki phtecpv' f khtgpeg" ; r > 2027+

Uki phtecpeg' Wpf gtucpf lpi 'vj g' mcf lpi eqpf kkp' vj cv' o quv' i tgcw' utclp' vj g" cpvtqrvtcni' ecr uwg" kp" nppgu" y kj" cpf " y kj qw" CEN' f co ci g" y kn' ko r t' q' xg" l' p' w { " o qf gnu' M' p' q' y r' g' i " g" qh' o czko wo " r tpekr cni' utclp' r cwgtpu" y kn' cnuq' j gr" uwi g' pu" vj " o qtg" ceewcvgn' tgr ckt" f co ci g" y j gp" dqj " vj g" CEN' cpf " vj g' cpvtqrvtcni' ecr uwg' ctg' f co ci g']6.7_0

Cempqy rgi go gpvuk Vj cpnu'vq'vj g'F gr ctwo gpv'qh'
Dkqgpi kpggtkpi "cpf"vj g'F gr ctwo gpv'qhl'Qtvj qr gf leu"
cv'vj g'Wpkxgtukv' qhl'Rksudwti j 0

T ghtg gpeguk

30' O k{cucne"gv'crf'Co 'L'Mpgg'Uti 0'6."6566: .:3; ; 3

40' "Ur kpf rgt" MR." Y tki j v' TY 0' P" Gpi n' L" .O gf 0"
57; *42+4357/4364."422:

50' Dkcw' gv' crf' Erkp" Qtvj qr "Tgrcv" Tgu 0" 67: -3: 2/3: 9."
4229

60' "I wgpvj gt" gv' crf' Cpvgtqrvgten' tqvcvt { " kpuvcdkks"
qh' vj g" npgg0' Mpgg" Uti " Urqtvu" Vtcwo cvqri'
Ctj t que 042370

70' O qqtg'gv'crf'Cpp'Dkqo gf 'Gpi '5: *3+88/98."4232

S WCP VHX KPI 'VHXKHQVWVCT' MHP GO CVKEU WUKPI 'FOCU' O QVHKP "
VTCEM KPI 'U UVGO 'VQ' KPXGUVH CG'U PFGUO QVKE 'KPLWTKU

Lqur j 'O 'Vcncj kuj k'. 'Mgxkp' O 'Dgm'. 'O cEcnw' X' J qi cp^{3.4} 'cpf' 'Tlej ctf' 'G' F gdukn³

30' F gr ctwo gpv'qh'Dkqgpi kpggtkpi . 'Wpkxgtukv' {qh'Rkwudwti j . 'Rkwudwti j . 'RC.' 'Wpkxgf' 'Ucvgu0
 40' F gr ctwo gpv'qh'Qtvj qr cgf ke'Uwti gt { . 'Wpkxgtukv' {qh'Rkwudwti j . 'Rkwudwti j . 'RC.' 'Wpkxgf' 'Ucvgu0

KPVTQFWEVKQP

Kplwtku" vq" vj g" cpmg" u{pf guo quku." eqo o qpn{ " tghgtgf " vq" cu" j ki j " cpmg" ur tclpu." v{r lecm{ " qeewt" cu" c" tguwn' qh' gzvgtpcn' tqvckqp" qt" j {r gt" fqtukhgzkqp" qh' vj g" hqyv." y j lej " o c{ " f kutvr v' vj g" u{pf guo qvle" rki co gpw' cpf " eqo r tqo kug" vj g" kpxgi tkv{ " qh' vj g" f kucn' vdkc." hkwrc." cpf " vcnw']3_0' Uwti lecn' vtgcvo gpv' uggmu" vq" ucdkkg" vj g" f kucn' vdkqhkdwrc" utvewtg" vq" cmqy " vj g" u{pf guo quku" vq" j gcn' Dgecwug" cp" kpetgcug" kp" hkwrc" f kur nrego gpv' tgrvckg" vq" vj g" vdkc" r tqxf gu" cp" ghgcvckg" o gvj qf " qh' f gvgt o klpki " c" u{pf guo qvle" kplw{. " swcpvkh{ kpi " uwej " f kur nrego gpw" ctg" qh' ko o gpug" kpxgtgv' erklecm{ "]4_0' Vq" swcpvkh{ " vj g" tki kf " dqf { " o qvckp" dgy ggp" vj g" vdkc" cpf " hkwrc." c" tqdqvle" vguvki " u{ungo " y cu" wugf " o cplr wrcv" vj g" hqyv' tgrvckg" vq" vj g" vdkc' J qy gxgt." cp" gzvgtpcn' u{ungo " y cu" pgeguact{ " vq" vcnem' hkwrc" o qvckp' Vj g" qdlgevckg" qh' vj ku" uwf { " y cu" vq" f gxgrqr " c" r tqvqeqn' vq" f gxgrqr " c" r tqvqeqn' vq" o gcuwg" hkwrc" o qvckp" wulpi " c" o qvckp" ecr wtg" u{ungo " *FOCU. " Ur lecvgm" J K" cpf " cuuguu" vj g'ceewtce{ "cpf" tgr gcvdckv{ "qh'vj g'o gvj qf qm{ i 0

O G V J Q F U

Kp" qtf gt" vq" cuuguu" vj g" FOCU'au" cdkrkv{ " vq" vcnem' nkpgo cvkeu.

- " C" o gej cplecn' f ki kkg gt" y cu" f guki pgf " vq" tgi kngt" r qkpvu" kp" vj g" FOCU' u{ungo " kp" qtf gt" vq" etgcvg" cp" cpcvqo lecn' eqqtf kpcvg" u{ungo 'hqt' vj g'vdkc'cpf' hkwrc
- " O ctngt" vckf u" y gtg" f guki pgf " vq" vcnem' nkpgo cvkeu0
- " Chgt" xcrlf cvki " vj g" u{ungo ." c" r tcevleg" vguv' qp" c" ur geko gp" y cu" r gthqto gf " vq" f gvgt o kpg" c" dcugrkpg" hqt" r j {ukqmi ke" nkpgo cvkeu" qh' vj g" hkwrc0

Fgxgrqr 'O gej cplecn' f ki kkg gt

Vj g" o gej cplecn' f ki kkg gt" y cu" xcrlf cvgf " dcugf " qp" ku" ceewtce{ " cpf " tgr gcvdckv{ '0' Vq" gxcnvcvg" tgr gcvdckv{ ." c" dqm' y cu" f ki kkg gf " vgp" vko gu" cpf " vj g" f hgtgpeg" qh' vj g" z. { .] " nqecvckp" qh' gcej " r qkpv" f ki kkg gf " cpf " vj g" cxgtci g' nqecvckp" qh' vj g' vgp" r qkpv' y cu' f gvgt o kpgf 0

Ceewtce{ " y cu" f gvgt o kpgf " d{ " f ki kkg kpi " c" dqm' cpf " vj gp" vcpurckpi " vj g" dqm' 4" o o 0' *F kucpeg" f gvgt o kpgf " wulpi " c' hkgct' vcpurckp' ceewtcev' vq' 32" o +0

Fgxgrqr 'O ctngt' vckf u

C" o ctngt" vckf " eqpukvki " qh' hqwt" eqpvckv' dcugf " o ctngtu" *hqt' vj " o ctngt" hqt" tgf wpf cpe{ + " y cu" hkgf " vq" vj g" tqdqvle" vguvki " u{ungo ." y j lej " f kur nregf " vj g" vckf " vj tgg" vckm' qh' 72" o o " *rci g" f kur nrego gpv+ " cpf " tqvckgf " vj g" vckf " vj tgg" vckm' qh' 37" *rci g" tqvckp+0' Vj g" eco gtc" u{ungo " y cu" xcrlf cvgf " dcugf " qp" ku" cdkrkv{ " vq' ceewtcev' tgeqtf " vj g' hqyv' p' f kur nrego gpw0

VtcentRj {ukqmi lecn' O qvckp

C" ecf cxgtle" ur geko gp" y ksj " u{pf guo quku" kpcv' y cu" o qvckgf " qp" vj g" tqdqvle" vguvki " u{ungo ." r tguvckpi " vj g" u{pf guo quku' O ctngt" vckf u" y gtg" tki kf n{ " cwcej gf " vq' vj g' dqp" *f ki kkg" wtg' 3+0

Vj g" o gf kcn' cpf " ncvten' o cmgark" cpf " vj q" r qkpvu" nqecvgf " kphgtkqn{ " cpf " uwr gtkqn{ " cmqpi " vj g" vdkcn' etgv' y gtg" f ki kkg gf " vq" f ghkg" vj g" vdkc" cpcvqo lecn' eqqtf kpcvg' u{ungo 0



Hqwt" nqf kpi " eqpf kkpku" y gtg" ulo wrcvgf ." gcej " tgr gcvgf " vj tgg" vko gu" vq" f gvgt o kpg" tgr gcvdckv{ '0' Hqwt" vguvki " eqpf kkpku" y gtg" cr r rkgf < 32" Po " gzvgtpcn' tqvckp" *GT+ vqtswg" y cu" cr r rkgf " cv' 2" qh' hgzkqp." 32" Po " vqtswg" y cu" cr r rkgf " vq" vj g" cpmg." 32" Po " GT" vqtswg" y cu" cr r rkgf " y gni' cu" cv' 32" qh' f qtukhgzkqp' Vj g" FOCU' u{ungo " y cu" wugf " vq" tgeqtf " vj g" r qukckp" qh' vj g" o ctngt" vckf u" cv' vj g" gpf r qkpv' qh' gcej " vguvki " eqpf kkpku0

Fcv' Cpcn'uku

Cm' xkf gq' fcv' y cu' rtqeguuf" lp' vj g' FOCU9" uqhy ctg' vq' gzvcev' z.{.|" eqqtfkpcv'u" qh' vj g' vtcengf" o ctngtu0' Cm' o ctngt' fcv' y cu' cpcn' | gf" lp' O cvrd' *O cvj Y qtm' Kpe0' OC+0' Hqt" dqvj" vj g' o gejcplecn' fki kkl gt" cpf" vj g' o ctngt' vtkfu." gttqt" cuuqekv'gf" y kj" f kur rnego gpv" cpf" tqcvkqp" y cu' ecrewv'gf" cu" vj g' cduqmwg" f khtgpeg" qh' vj g' qdugt'xf" o qv'kp" cpf" vj g' npqy p'bo qv'kp0

XCNE CVKQP'ETKGTK

Cxgtci g' tgr qtv'gf" rkgtcwtg" xcnwgu" hqt" o gcuwgf" hkdwrt" f kur rnego gpv' y cu' hqwpf" vq" dg" 4057" o o "]5_0' Vj gthgtg." vj g' xcrl'cvkqp" etkgtk" hqt" ceewtce{" cpf" tgr gcvd'k'k'v' y cu' ugv' cv' Ö2042" o o ." cp" qtf gt" qh' o ci plwf g" dgwgt0' Vj ku' xcrl'cvkqp" etkgtk" y cu' cr r rkgf" vq" dqvj" vj g' o gejcplecn' fki kkl gt" cpf" vtcenkpi" n'pgo cv'ku'qh'vj g'o ctngt'vtkfu0

TGUWVU

O gejcplecn' fki kkl gt

Vj g' ceewtce{" qh' vj g' fki kkl gt" y cu' fgv'to l'p'gf" vq" dg" 2087" o o "cpf" tgr gcvd'rg"v'2083" o o 0

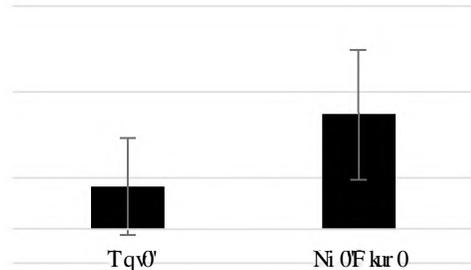
O ctngt' vtkfu

Vj g' gttqt" qh' vj g' eco gtc" u{vgo " hqt" swcpv'k' l'pi" n'pgo cv'ku" y cu' hqwpf" vq" dg" Ö' 2088" o o " hqt" rti g' f kur rnego gpv" cpf" Ö' 2046" f gi tggu" hqt" tqcvkqpu" *H'ki w'g'4+0

Rj {ukq'qi kecn'O qv'kp

Hqt" gcej" rj {ukq'qi kecn' v'g'v'pi" eqpf k'k'q'p." xctk'v'k'p" lp" v'c'p'ur'v'k'p" t'c'p'i g'f" h'q'o "206" o o "vq" 208; " o o " *V'cd'rg" 3+0' Kp" cm' v'g'v'pi" eqpf k'k'q'p." o g'f' k'cn' r'v'g't'cn' *ON+ v'c'p'ur'v'k'p" y cu' q'd'ug't'x'g'f." t'c'p'i l'p'i " h'q'o " 2088" 6" 3073" o o " *V'cd'rg" 3+0' C'f'f'k'k'q'p'c'm'." c'v' r'g'c'u'v' c" 207" o o " r'q'u'v'g't'k'q't" f'k'ur' r'neg'o g'p'v' y cu' q'd'ug't'x'g'f" f'w't'k'p'i" cm' v'g'v'pi" eqpf k'k'q'p." y j' l'ej" y cu' g'ur'g'ek'c'm' " r't'g'x'c'rg'p'v' f'w't'k'p'i "g'z'v'g't'p'c'n't'q'v'k'q'p"cv'24"qh' h'g'z'k'q'p0

Error in Translation (mm)/Rotation (deg.)



H'ki w'g'4<Gttqt"cuuqekv'gf"y kj" rti g'f'kur rnego gpv'cpf" rti g' tqcvkqpu0

F KUEWUKQP

Vj g' fgukip" etkgtk" guvdrkuj gf" hqt" ceewtce{" cpf" tgr gcvd'k'k'v' qh' vj g' o gejcplecn' fki kkl gt" y cu' 2042" o o 0' Vj g' o gejcplecn' fki kkl gt" o gv' vj g' guvdrkuj gf" fgukip" etkgtk" hqt" dqvj" ceewtce{" cpf" tgr gcvd'k'k'v'0' Ceewtce{" qh' vtcenkpi" o ctngt' vtkfu" hqt" rti g' f kur rnego gpv" cpf" rti g' tqcvkqpu" y cu' i tgcv'gt" vj cp" vj g' guvdrkuj gf" fgukip" etkgtk'0' J qy g'x'g'." 2088" o o " gttqt" hqt" c" rti g' v'c'p'ur'v'k'q'p" cpf" tqcvkqp" t'g'u'w'u" lp" 3054' " cpf" 308' " gttqt" t'g'ur'g'v'k'x'g'n'." y j' l'ej" y cu' f'g'g'o g'f" vq" dg" c'ee'g'r'v'c'd'rg" cv' vj ku' v'o g'0' D'g'ec'w'ug" g'z'r'g'ev'gf" h'k'd'w'rt" o q'v'k'p" ku' uo cm' h'w't'v'g't" c'p'c'n' 'u'ku' y k'ri' l'p'x'g'u'k'i cv'g" vj g' u{v'g'o " ceewtce{" hqt" uo cm' v'c'p'ur'v'k'q'p'cpf' t'q'c'v'k'q'p'0

Rj {ukq'qi kecn'O qv'kp

Vj tqv'j'q'w' cm' v'g'v'pi" eqpf k'k'q'p." vj g' xctk'v'k'p" dgw'g'p' v'k'cn' y cu' q'p" cxgtci g' 2043" o o " l'p'f'k'ec'v'pi" vj g' c'd'k'k'v' " vq" r'g't'h'q'to" rj {ukq'qi kecn' v'g'v'pi" eqpf k'k'q'p" vq" c" j'k'j" f'g'i t'g'g' qh' tgr gcvd'k'k'v'0' Kp" cm' v'g'v'pi" eqpf k'k'q'p" r'g't'h'q'to g'f." o g'f' k'cn' r'v'g't'cn' f'k'ur' r'neg'o g'p'v' *o q't'v'k'ug" y k'f'g'p'k'p'i "+" y cu' q'd'ug't'x'g'f'0' Vj ku' k'ur' eqpewt'gp'v' y kj" u'q'o g' r'kg't'c'w't'g' h'k'p'f'k'p'i u" vj cv' tgr qtv' r'v'g't'cn' f'k'ur' r'neg'o g'p'v' qh' vj g' h'k'd'w'rt"]4_ f'w't'k'p'i" u{p'f'g'u'o q'v'e" l'p'l'w't'k'g'u'0' Y j' k'rg" cm' v'g'v'pi" eqpf k'k'q'p" t'g'u'w'g'f" lp" rti g't" r'q'u'v'g't'k'q't" f'k'ur' r'neg'o g'p'v" vj cp" tgr qtv'gf" lp" r'kg't'c'w't'g." c" r'k'o k'c'v'k'q'p" qh' vj ku' u'w'f' {" ku" vj cv' q'p'n' "q'p'g'ur'g'eko g'p'y cu' v'g'v'g'f'0

H'w'w't'g'F'k'g'ev'k'q'p'u

W'q'p" eqo r'rg'v'k'q'p" qh' c'f'f'k'k'q'p'c'n' xcrl'cvkqp" qh' vj g' FOCU9" u{vgo ." vj ku' o g'v'q'f'q'v'q'qi {" ecp" dg" w'ug'f" lp" vj g' c'p'c'n' 'u'ku' qh' c'f'f'k'k'q'p'c'n' c'p'm'g" ur'g'eko g'p'u" vq" l'p'x'g'u'k'i cv'g" u{p'f'g'u'o q'v'e" l'p'l'w't'k'g'u" cpf" tgr c'k't" r't'q'eg'f'w't'g'u'0

TGHGTGPEGU

- 30 Xcp" J g'g'u'v." V0" Kplw'k'g'u" vq" vj g' C'p'm'g" U{p'f'g'u'o q'uku.'IDLU.'4236<8'825/350
- 40 Rqt'v'g't'F0'QCLLO.'4236-7'395/3: 40
- 50 O'c't'n'q'rh" M0" U{p'f'g'u'o q'v'e" Kplw'k'g'u." HCK' 4234-55" 99; /": 80

CEMPQY NGFI GO GPVU

Vj ku' r't'q'l'g'ev' y cu' u'w'r'q't'v'gf" d{" vj g' F'g'r'c't'v'o g'p'v' qh' D'k'g'p'i l'p'g'g't'k'p'i" cpf" vj g' F'g'r'c't'v'o g'p'v' qh' Q't'v'q'r'c'g'f'k'e" U'w'ti g't{0

Vedrg'3<Hdwrct'vcpurvkqpu'f wg'vq'gzvgtpcntqvcvkqp'cpf' 'o czko wo 'fqtukrgzkqp

Vgukpi 'Eqpf lkqp

<i>Vt cpurvkqp'F kt gevkp</i>	52 ^a 'Rrcpvcthrz0 32" Po 'GT	2 ^a 'Hgz0 32'Po " GT	32 ^a " Fqtukrgz0 32 Po 'GT	32'Po 'Fqtukrgz0
<i>ON^o o +^o " ? 'icvgtcn+</i>	3080208	30730208	3082020:	20880206
<i>CR^o o +^o " ? cpvgtkqt +</i>	/60670208	/8024020:	/60 30208;	/20770202
<i>UK^o o +^o " ? 'imr gt kqt +</i>	/20440204:	/205; 020:	/208; 0209	20560209