



ARTS3050

F YUX]b['B Uli fYg

GYa YghYf'Hk c''##'&\$%



GWcc''cZH Y'5ftg'UbX'A YXJU''##'I BGK ''5ftg'UbX'GcWJU''GWYbWg

7 ci fgY`Cj Yfj]Yk

`GHUZZ7 cbhUW`i8YHU]`g`

`7 cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]]m	@cWU]cb	D\cbY
G][]>ch_UbXh	g"ch_UbXh4 i bgk "YXi "Ui	: f]XUmg`%&%%&	K YVghYf' %%>	l) *, %

GWXcc`7 cbhUW`i`bZcfa Uh]cb

F cca " %&Z`Yj Y"" `F cVYfhK YVghYf'6i]X]b[

D\cbY: f\$&L-' ,) (,) *

9a U]: [gUa 4 i bgk "YXi "Ui](#)

K YVg]hY: [\hfdg.#gUa "Ufng"i bgk "YXi "Ui](#)

H\Y`GWXcc`cZHY`5fng`UbX`A`YX]U`k`ci`X`[_Y`hc`F`YgdYWZ`m5W_bck`YX[`Y`hY`HfUX]h]cbU`7`i`g]cX]UbgZ`hY`6YXY[`U`fP`Ybg]b[`hc`b`WUa`di`g]Z;`UX][`U`f]7`]mUbX`5fh/`8Yg][`b`7`Ua`di`gYg]UbX`hY`B`[`i`bbUk`U`dYcd`Y`f5i`ghU]Ub`8YZrbW: `cfW`5WUXYa`m]b`7`UbVYffU]cZHY`UbXg`k`YfY`YUWX`WUa`di`g`cZI`BGK`]g`c`WUHYX"

5 hYbXUbW`F`Yei`]fYa`Ybhg

5`gh`XYbh]g]Y`dYWYX`hc`UhhYbX`U`WUgg`W`b]hUW`i`ci`fg`Zcf`U`ZUW`!hc`ZUW`f]`&`L`cf`V`YbXYX`W`i`fgY`UbX`W`a`d`Yh`U`U`UW]j`]hYg`Zcf`U`V`YbXYX`cf`Z`m`cb`]bY`W`i`fgY"

5`gh`XYbhk`c`Uff]j`Yg`a`cfY`h`Ub`%`a`]bi`hYg`U`h`a`UmVY`dYbU`]gYX`Zcf`bcb!`UhhYbXUbW`"Zgi`W`U`dYbU`m`]g`]a`dcgYXZ`hY`gh`XYbhia`i`ghVY`]bZcfa`YX`j`YfVU`m`Uh`hY`YbX`cZUWgg`UbX`UXj`]gYX`]b`k`f]h]b[`k`]h]b`&(`\`ci`fg"

ZU`gh`XYbhYI`dYf]YbW]g`]`bYggZ`a`]gUXj`Ybh`fY`cf`chYf`cW]W`ffYbW`h`Uha`U`Yg`UVgYbW`Zca`U`WUgg#UW]j`]m]i`bUj`c]XUV`YZcf`YI`dYW]g`hc`VY`UVgYbhZca`U`Zcf`h`W`a`]b[`WUgg#UW]j`]mZ`hYmg\`ci`X`gY`Y`dYfa`]gg]cb`Zca`hY`7`ci`fgY`5i`h`cf]mZ`UbX`k`YfY`Udd`]WU`YZ`hY]f`fYei`Yghg\`ci`X`VY`UW]W`a`dUb]YX`VmUb`cf][`]bU`cf`W`f]h]YX`W`dmcZU`a`YX]W`W`f]h]ZUW]h`cf`chYf`Zca`cZUddfcdf]U`h`Yj`]XYbW"

5`7`ci`fgY`5i`h`cf]m]a`UmYI`W`gY`U`gh`XYbhZca`WUggYg`cf`UW]j`]hYg`Zcf`i`d`hc`cbY`a`cbh`"<`ck`Yj`YfZ`hY`m`a`UmUgg][`b`UXX]h]cbU`UbX`#f`U`hYfbUh]`Y`hUg`g`hc`Ybgi`fY`W`a`d`]UbW`"5`7`ci`fgY`5i`h`cf]m]W`bg]XYf]b[`hY`[`fUbh]b[`cZUVgYbW`a`i`ghVY`gUh]gZ]YX`U`gh`XYbhk`]`g]`VY`UV`Y`hc`a`YYh`hY`W`i`fgY`g`YUfb]b[`ci`h`W`a`Yg`UbX`#f`j`ci`a`Y`cZ`YUfb]b[`"5`gh`XYbhgY`Y`]b[`Uddfcj`U`hc`VY`UVgYbhZca`cfY`h`Ub`cbY`a`cbh`a`i`ghUdd`m`]b`k`f]h]b[`hc`hY`8Y`Ub`UbX`dfcj`]XY`U`cf][`]bU`cf`W`f]h]YX`gi`ddcf]h]b[`XcW`a`Yb]h]cb"

:`cf`a`cfY`]bZcfa`Uh]cb`UVci`h`hY`UhhYbXUbW`dfch`W`g`]b`hY: `UW`hmcZ5fng`UbX`GcV]U`GW]YbW]g: [\hfdg.#k`k`k`"Ufng"i bgk "YXi "Ui #W`ffYbh\]gh`XYbhg#UWUXYa`\]W\]bZcfa`Uh\]cb`#fch`W`g\]`\[`i`\]XY`\]bYg#](#)

5 WUXYa]W`bZcfa Uh]cb`

7ci fgY'8YHJ`g

7fYX]hDc]bqg`*`

Gi a a UfmicZ`h`Y'7ci fgY

Gi V`Y`W`i`5`f`Y`U`.'`7` `Y`f`e`Z`

F YUX]b[`B`U`h` f`Y`g`'`Y`I` U`a`]`b`Y`g`'`h`Y`'`]`b`h`f`f`Y`'`U`h`c`b`g`'`d`'`V`Y`k` Y`Y`b`'`V`Y`k` Y`Y`b`'`]`h`f`U`f`m`i`h`I` h`g`'`U`b`X`'`W`c`b`W`d`h`g`'`c`Z`B`U`h` f`Y`"
: fca` 'h`Y`'`j` U`b`h`U`[` Y`'`d`c`]`b`h`c`Z`W`c`b`h`Y`a` d`c`f`U`f`m`i`W`c`b`W`f`b`g`'`k`]`h`'`W`]`a` U`h`'`W`U`b`[` Y`'`U`b`X`'`Y`b`j`]`f`c`b`a` Y`b`h`U`'`g`i` g`h`U`]`b`U`V`]'`]`m`z`
h`.]`g`'`W`c`i` f`g`Y`'`e`i` Y`g`h`]`c`b`g`'`]`h`f`U`h` f`Y`f`g`'`f`Y`d`f`Y`g`Y`b`h`U`h`]`c`b`'`c`Z`h`Y`'`b`U`h` f`U`'`k` c`f`X`'`U`b`X`'`'`i` a` U`b`'`g`c`W`Y`m`f`g`'`d`'`U`W`'`k`]`h`.]`b`'`]`h`
-`h`k`]'`'`W`c`a` d`U`f`Y`'`j` U`f`]`c`i` g`'`i` b`X`Y`f`g`h`U`b`X`]`b`[` g`'`c`Z`B`U`h` f`Y`'`Z`f`c`a` 'U`'`f`U`b`[` Y`'`c`Z`W`c`b`h`Y`I` h`g`'`U`b`X`'`U`g`_`'`k` \`Y`h`Y`f`'`]`h`]`g`'`d`c`g`g`]`V`Y`
h`c`'`a` c`X`Y`'`U`b`'`Y`b`j`]`f`c`b`a` Y`b`h`U`'`d`f`U`W`]`W`'`c`Z`f`Y`U`X`]`b`[` 'U`b`X`'`k` f`]`h`b`[` "'`

5h`h`Y`'`W`c`b`W`i` g`]`c`b`'`c`Z`h`.]`g`'`W`c`i` f`g`Y`'`h`Y`'`g`h`i` X`Y`b`h`k`]`'`V`Y`'`U`V`'`Y`'`h`c`

%" fYUX`U`W`c`g`g`'U`'`f`U`b`[` Y`'`c`Z`a` U`h`f`]`U`'`g`'`c`b`'`h`Y`'`Y`b`j`]`f`c`b`a` Y`b`h`
&" W`c`a` d`U`f`Y`'`j` U`f`]`c`i` g`'`h`Y`c`f`Y`h`]`W`'`d`c`g`]`h`c`b`g`'`U`b`X`'`U`d`d`f`c`U`W`X`Y`g`'`h`c`'`h`Y`'`g`h`i` X`m`c`Z`b`U`h` f`Y`'`U`b`X`'`'`]`h`f`U`h` f`Y`/
'`"]`X`Y`b`h`]`Z`m`W`c`b`b`Y`W`]`c`b`g`'`V`Y`k` Y`Y`b`'`]`b`h`'`Y`W`h`i` U`'`f`U`X`]`h`c`b`g`'`U`b`X`'`W`'`h`i` f`U`'`d`f`U`W`]`W`g`/
(`" k` f`]`h`'`U`'`W`Y`U`f`'`U`b`X`'`Z`i` Y`b`h`Y`g`g`U`m`Y`b`[` U`[` Y`X`'`k`]`h`'`]`g`g`i` Y`g`'`f`U`g`]`Y`X`'`]`b`'`h`Y`'`W`c`i` f`g`Y`
)`" W`c`b`X`i` W`h`U`b`X`'`X`Y`d`'`c`m`f`Y`g`Y`U`f`W`'`]`b`'`Z`Y`'`X`'`c`Z`'`]`h`f`U`h` f`Y`'`U`b`X`'`h`Y`'`Y`b`j`]`f`c`b`a` Y`b`h`
*" W`c`b`h`i` h`i` U`'`]`g`Y`'`U`b`X`'`U`f`h`]`W`'`U`h`'`U`'`W`]`h`]`W`'`d`c`g`]`h`c`b`F`

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5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
a U'cf'YggUmi) \$i	\$) #/\$#&\$% '\$) .\$\$'DA	%ž&ž ž(ž) ž*
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5ggYgga Ybh8YHU]`g

5ggYgga Ybh%`a U'cf'YggUm

GHUfhXUH. `Bch5dd`WUV`Y

8YHU]`g. `&ž) \$\$`k cfXg": YYXVUW`dfcj]XYX`j]U`Wci fgY`@A GH\Y`YggUmfYei]fYg`ghi XYbhg`hc`Uf[i Y`U`Wf]h]WU`
dcg]h]cb`]b`fY`U]cb`hc`cbY`cZa`cfY`cZ`hY`gYh]h] hg`cb`hY`Wci fgY`"H\Y`YggUma`i`gh]`bW] XY`]bXYdYbXYbh`
fYgYUfWž`dfcj]XY`U`Wc[YbhUf[i`a`Yb]ž`VY`k`Y`"gfi`W] fYX`UbX`Zi`Ybh`

Gi Va]gg]cb`bchYg.F YZf`hc`A`ccX`Y

Hi fb]h]b`gYH]b[.`H\]g`Ugg][ba`Ybh]g`gi`Va`]hYX`h`fci [\`Hi`fb]h]b`UbX`gh`XYbhg`Xc`bchgYY`Hi`fb]h]b`
g]a`]Uf]mifYdcfng"

5ggYgga Ybh&.`; fci d'Dfc'YWh

GHUfhXUH. `

8YHU]`g. `9ei]j`U`YbhcZ%) \$\$`k cfXg": YYXVUW`dfcj]XYX`j]U`Wci fgY`@A GK`cf_]b[`]b[`fci`dg`cZ`&!'`
a`Ya`VYfgž`ghi`XYbhg`k`]`fYgYUfW`UbX`WfYU`h`U`a`]Wfci`UbXgWUdY`"Gh`XYbhg`k`]`fYW]`j`Y`k`f]hY`b`Z`YXVUW`U`
[`fUXY`Z`f`hY`[`fci`d`k`cf`_`Ug`U`k`l`c`Y`UbX`cbY`Z`f`hY`f`]bX]`j`Xi`U`W`bhf]Vi`h]cb`"

Gi Va]gg]cb`bchYg.F YZf`hc`A`ccX`Y

Hi fb]h]b`gYH]b[.`H\]g`]g`bchU`Hi`fb]h]b`Ugg][ba`Ybh

5ggYgga Ybh' .`Gma dcg]i a`

GHUfhXUH. `

8YHU]`g. `9ei]j`U`YbhcZ%) \$\$`k cfXg": YYXVUW`dfcj]XYX`j]U`Wci fgY`@A GH\Y`Gma`dcg]i`a`]g`U`a`]b]`
W`bZ`fY`bW`fi`b`Vm`hY`gh`i`XYbhg`Uh`hY`YbX`cZ`hY`Wci`fgY`"Gh`XYbhg`UfY`cf[`Ub]gYX`]bhc`[`fci`dg`UbX`a`YYh`
cb`]bY`UbX`ZJW`hc`ZJW`hc`dfYdUfY`hY`f`dfYgYb]h]cb`cb`U`h]i`hZ`ca`h`hY`Wci`fgY`"Gh`XYbhg`fYW]`j`Y`U`a`Uf`_`
g`Y`Yh`h`Uh`XYHU]`g`h`k`[`fUXYg`cbY`Z`f`hY`[`fci`d`k`cf`_`Ug`U`k`l`c`Y`UbX`cbY`Z`f`hY`f`]bX]`j`Xi`U`W`bhf]Vi`h]cb`"

Gi Va]gg]cb`bchYg.F YZf`hc`A`ccX`Y

Hi fb]h]b`gYH]b[.`H\]g`]g`bchU`Hi`fb]h]b`Ugg][ba`Ybh

Gi Va]gg]cb'cZ5ggYgga YbhHUg_g

Gh XYbng'UFY'YI dYW'X'hc'di h'AY]f'bUa Yg'UbX'ghi XYbhbi a VYfg'cb'Yj YfmdU[Y'cZ'AY]f'Ugg][ba Ybng"

Hi fb]h]b'Gi Va]gg]cb

zmc i 'YbWci bhYf'U'dfcV'Ya 'k \Yb'U'HYa dh]b['hc'gi Va]hmc i f'Ugg][ba Ybh'k'fci [\ 'Hi fb]h]bzd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfh'cb-' ,) ' ' ' %cf'Ya U] 'h'Ya 'cb'[YI HYfbU'HY'f'gi ddcfh' i bgk "YXi "Ui."](#)Gi ddcfh
\ci fg'UFY' , .\$\$Ua '-'%. \$\$da 'cb'k YY_XUmg'UbX'-. \$\$Ua '-') . \$\$da 'cb'k YY_YbXg'f'*) 'XUmg'U'm'YUf'z' zmc i
UFY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhXi Y'hc'U'ZU' 'hk]h'Hi fb]h]b' mci 'a UmiUdd'm'Zcf'Ub'YI HYbg]cbz'Vi hmc i
a i ghf'Y]b' mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfh'f'U'cb['k]h'Ubmc'h'Y'f'f'Y'j Ubh'XcW a Ybng'k'hc
]bW' XY'Ug'Yj]XYbW'hc'gi ddcfh' mci f'YI HYbg]cb'Udd']W]h]cb" zmc i 'Ya U] '9I HYfbU'Gi ddcfh' mci 'k]`
Ui 'ca U]W' m'f'Y'W'j Y'U'h]W_Yhbi a VYf'z'Vi h]Zmc i 'HY'Yd\cbY' mci 'k]`b'Y'X'hc'gd'Y'W'Z]W' m'Ug_'Zcf'cbY"
Hi fb]h]b'U'gc'd'fcj]XYg'i dXU'HY'g'cb'h'AY]f'gmg'h'Ya 'ghU'h'g'cb'Hk]h'Y'f"

; YbYfU'm'z'UggYgga YbhHUg_g'a i ghVY'gi Va]h'Y'X'Y'Y'W'f'cb]W'mj]U'Y]h'Y'f'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba Ybh' 'b]bg'h'Ub'W'g'k \Yf'Y'h']g]g'bchidcgg]V'Yz'jhk]`VY'g'h'Y'X'cb' mci f'W'ci fg'Y'g'A ccX'Y'g]h'k]h'
U'h'f'U'h] Y'gi Va]gg]cb'XYh]g"

@UH'5ggYgga YbhDYbU'h]Yg

- K cf_gi Va]hYX`%\$`hc`%-`XUmg`UZhYf`h`Y`gh]di`U`hYX`XYUX`]bY`k`j`VY`UggYggYX`UbX`ZYXVUW`dfcj`]XYX`Vi`hU`a`Uf`_`cZnYfc`k`j`VY`fYW`fYX`" `Z`hY`k`cf`_`k`ci`X`\\Uj`Y`fYW`j`YX`U`dUgg`a`Uf`_`Vi`hZcf`hY`U`hY`bYgg`UbX`hY`k`cf`_`]g`U`W`a`di`gcfm`W`i`fgY`W`a`dcbYbhf`i`fX`Y`fYei`]fYa`YbH`Z`U`gh`XYbhk`j`VY`XYYa`YX`hc`\\Uj`Y`a`Yh`h`UhfYei`]fYa`Ybh`
- K cf_gi Va]hYX`&\$`cf`a`cfY`XUmg`UZhYf`h`Y`gh]di`U`hYX`XYUX`]bY`k`j`bchVY`U`W`W`d`hYX`Zcf`UggYgga`Ybh`UbX`k`j`fYW`j`Y`bc`ZYXVUW`Z`a`Uf`_`cf`[`fUXY`" `Z`hY`UggYgga`Ybh`Ug`_`]g`U`W`a`di`gcfm`W`a`dcbYbhc`Z`hY`W`i`fgY`U`gh`XYbhk`j`fYW`j`Y`Ub`l`bgUhgZUW`c`fm`U`]`fl`:`k`[`fUXY`Ug`U`fYgi`hc`Z`i`bgUhgZUW`c`fmdYfZcf`a`UbVW`]b`Ub`YggYbh]U`W`a`dcbYbhc`Z`hY`W`i`fgY`"

H\]g`]bZcf`a`U`h`cb`]g`U`gc`Uj`U`]\$ %ofm %o %o %o

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]hCi hUW_bck`YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf`]XYU`k]hCi hUW_bck`YX[]b[`hY
gci fW`cf`i g]b[`ei chU]cb`a Uf_g`"H\]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][b`dfc`YWgZ`Ug`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]hCi hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`Z`UbX`]bZcfa U]cb`k]hCi hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]hCi hWYX]hUbX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k]hCi hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb. `k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_"`7 c`i g]cb`U`gc

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5W'Wd'U'V'Y'I gY'cZ
I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'U'g'U'X'U'f'X'g'c'Z'V'Y'\U'j]ci f'Y'I d'Y'W'X'c'Z'Y'j Y'f'm'c'b'Y'']b'U'Y'I BGK 'W'a a i b]m
- `c'W'U'h'g'Y'f'j]W'g'U'bx'j'b'Z'c'f'a U'h'c'b'U'V'c'i h'l BGK 'U'bx'I BGK '@]V'f'U'f'm

Gca Y'cZ'U'g'Y'U'f'Y'U'g'k]`VY'Z'Ja]]U'f'U'c'mci ž'c'h'Y'f'g'k]`VY'b'Yk "; U]b]b['U'g'c`X'i bXYfghUbx]b['cZU`U'U'Y
f'Y'U'Y'X'U'g'd'Y'W'g'c'Z'9@-G'9'k]`Y'Y'd'mci 'a U_Y'U'Y'a c'g'h'c'Z'mci f'g'h X]Y'g'U'hl BGK "

fl

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

- 7ci fgY`F YUXYf`cb`A ccX`Y
- H\Y`Bcftcb`6cc_`cZBUh fY`K f]h]b[
- J]f[]b]U`K cc`Z`