

# **ARTS2755**

## 7 ci fgY Cj Yfj ]Yk

## GHJZZ:7cbHJWh:8YHJ]`g

### 7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`] <b>m</b>	@cWUh]cb	D\cbY
>cmW/Ki	g .	J ,	,	fž*%£;\$& -\$*) ()&(

### GWXcc`7cbHJWhi±bZcfa Uhjcb

GWXcc``cZGcWJU``GWJYbWYg

Fcca '%) -

A cfj Yb 6fck b 7 &\$

Ya U]`. 'gcgg4 i bgk "YXi "Ui

d\cbY. '\$&'-',) '% \$+

### 7ci fgY 8YHJ] g

#### 7 fYX]hDc]bhg \*

### Gi a a UfmcZh\Y 7ci fgY

### 7 ci fgY @YUfb]b[ Ci hWca Yg

- %" 9I d`U]b`UbX`Wf]h]WU``mUbU`mqY`WcfY`UddfcUW\Yq`]b`; `cVU``8YjY`cda YbhdfUWf\WY
- &" 7 ca a i b]\WUHYzigc`j Y`dfcV`Ya g`UbX`bY[cH]UHY`dfcXi Wfj Y`miUbX`YZZYWfj Y`mik]h\`U`X]j YfgY`gYhcZ UWfcfg`]b`; `cVU``8Yj Y`cda Ybh
- '" → XYbrjZmrN Y 'UWcfgž']brYfYgrg 'UbX']XYUg'rN UnYbUV'Y 'UbX'WcbgrfU]b']bWig]j Y'XYj Y`cda Ybh

### HYUWX]b[ GhfUhY[]Yg

H\]g`Wci fgY'g`HYUW\]b[ `ghfUHY[]Yg`UbX`fUh]cbU`Y`UfY`VUgYX`cb`mci `Vf]b[]b[ `mci f`df]cf``YUfb]b[ `hc`h\Y WUggfcca `UbX`Yb[U[]b[`]b`H\Ua k cf\_`]b`H\Y`Wc!Wcbghfi Wh]cb`cZ\_bck `YX[Y"'H\]g`fYd`]WUhYg`fYgYUfW\`UbX dfUWhWiYbj]fcba Ybhg`]b`BYj Y`cda YbhGhi X]Ygžk\]W\]g']bHYf!X]gW]d`]bUfmUbX`YI d`]Whm]bWi XYg`a i `h]d`Y j c]WYg`hc`dfcXi WY`UWh]cbUV`Y`\_bck `YX[Yfg\t"H\]g`Wci fgY`]bWi XYg`cb`]bY`UbX`ZUWY!hc!ZUW`Wca dcbYbhg" @YWhi fYg`UfY`]bHYfUWh]j Y`UbX`]bWi XY`[ fci d`k cf\_ž]bX]j ]Xi U``fYZYWh]cbžUbX`Wf]h]WU``fYZYWh]cb`cb`WcbHYbh' Hi hcf]U`g`dfcj ]XY`Ub`cddcfhi b]hmhc`fYZ]bY`mci f`i bXYfgHUbX]b[`cZ\_Ym]ggi Yg`UbX`WcbWYdhg"`H\YfY`k]``VY

### 5ggYgga Ybh

8 i Y XUhYgʻcZh\YʻUggYgga YbhgʻWUbʻVYʻZci bXʻ]bʻA ccX`Y"

D`YUgY`Wcbgi `h`A ccX`Y`Zcf`Z ff\Yf`]bZcfa Uh]cb`UVci hih\Y`UggYgga Ybhgž`Ug`k Y```Ug`fYgci fWYg"

#### 5ggYgga Ybh'HUg\_g

5ggYgga Ybh'hUg_	K Y][ \h	8i Y'8UHY	Gh XYbh@YUfb]b[ Ci hWca Ygʻ5ggYggYX
7 f]h]wu``Yj U`i Uh]cb`cZU wa a cb`hcc`#JddfcUW. hc ]bWi g]j Y`XYj Y`cda Ybh	(\$1	Bch5dd`]WUV`Y	%ž''
@cWU`8Yj Y`cda Ybh7 UgY Gh Xm	* \$1	Bch5dd`]WUV`Y	&ž''

#### 5ggYgga Ybh'8YhJ]`g

5ggYgga Ybh% '7f]h]WU`Yj U`i Uh]cb'cZ'U'Wca a cb'hcc`#JddfcUWX hc']bWi g]j Y'XYj Y`cda Ybh

GhUfhXUhY. Bch5dd`]WUV`Y

@Yb[h\.'%) \$\$"! "&\$\$\$"k cfXg

8YHJ]`g.

%) \$\$! &\frac{2}\$\$\$ k cfXg. `Ghi XYbhg`k ]```VY`Ug\_YX`hc`gY`YWhU`hcc``cf`UddfcUW\`Wca a cb`mi gYX`]b`h\YXYj Y`cda YbhgYWhcf`UbX`Yj U`i UhY`]hg`UXj UbhU[ Yg`UbX`X]gUXj UbhU[ Yg`hc`UW\]Yj ]b[ `]bWi g]j Y`XYj Y`cda Ybh'

Gh XYbhg`k]``fYWY]jYkf]hhYb`ZYYXVUW\_`UbX`U`a Uf\_YX`fi Vf]Wk]h\]b`hYb`XUmg`cZgi Va ]gg]cb"`H\Y`fi Vf]Wk]``VY`Uj U]`UV`Y`Uhih\Y`ghUfhcZhYfa `hc`U``ck `gh XYbhg`hc`k cf\_`hck UfXg`WYUf`m`Wca a i b]WUhYX`ghUbXUfXg"

#### 5XX]h]cbU`XYhU]`g.

8 i Y XUhYg cZh\Y UggYgga Ybhg WUb VY Zci bX ]b A ccX`Y"

D`YUgY`Wcbgi`h'AccX`Y`Zcf`Zfh\Yf`]bZcfaUh]cb`UVcihih\Y`UggYggaYbhgž`Ug`kY```Ug`fYgcifWYg"

Gi Va ]gg]cb bchYg. cb`]bY

 $\label{thm:continuous} \begin{tabular}{ll} Hi & fb & fb & gYM &$ 

5ggYgga Ybh'& '@cWU` 8Yj Y`cda Ybh'7UgY Gh Xm

GhUfhiXUhY. Bch5dd`]WUV`Y

@Yb[h\. &") \$\$!' ž\$\$\$ k cfXg

#### 8YHJ]`g.

Ghi XYbhgʻgi Va ]hUʻ&ž) \$\$!' ž\$\$\$`k cfX`YggUmʻUbU`mg]b[ 'h\Y`dchYbh]U``YZZYWfj YbYggʻfcf`bchŁcZX]ZZYfYbh UddfcUW\YgʻhcʻUW\]Yj Y`]bWi g]j Y`XYj Y`cda Ybh`]bʻh\UhWcbhYl h'`

Ghi XYbhgʻk]``fYWY]j Y`k f]hhYbʻZYYXVUW\_'UbX`Uʻa Uf\_YX`fi Vf]Wk]h\]b`hYb`XUmgʻcZgi Va ]gg]cb"'H\Y`fi Vf]Wk]``VY`Uj U]`UV`Y`Uhh\Y`ghUfhcZhYfa 'hc`U``ck 'ghi XYbhg`hc`k cf\_'hck UfXg`WYUf`mWca a i b]WUhYX`ghUbXUfXg"'H\]g ]g`h\Y`Z]bU``UggYgga YbhZcf`h\Y`Wci fgY"

#### 5XX]h]cbU`XYhU]`g.

8 i Y XUhYg cZh\Y UggYgga Ybhg WUb VY Zci bX ]b A ccX`Y"

D'YUgY'Wcbgi 'hA ccX'Y'Zcf'Z ff\Yf']bZcfa UhJcb'UVci hh\Y'UggYgga Ybhgž'Ug'k Y```Ug'fYgci fWYg"

Gi Va ]gg]cb bchYg. cb`]bY

 $\label{thm:continuous} \begin{tabular}{ll} Hi & fb & fb & gYM &$ 

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## Fygci fWyg

DfYgWf]VYX F Ygci fWYg

FYWca a YbXYX FYgci fWYg

7ci fgY 9j U`i Uh]cb UbX 8Yj Y`cda Ybh

### Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

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

Image: Ybwei bhyfu'dfcv'ya k \yb'uhhya dhjb[ 'hc'gi va ]hmci f'Ugg][ ba Ybhh\fci [ \ 'Hi fb]h]bž'd'YUgY

Hy'Yd\cby'9| hy'fbu''Gi ddcfhcb'-', ) '' ' ' %cf'Ya U]''h\Ya 'cb'Y! hy'fbu'hy'hgi ddcfh4 i bgk "YXi "Ui "''Gi ddcfh
\ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY\_XUmg'UbX'-.\$\$Ua '-').\$\$da 'cb'k YY\_YbXg'fl \*) 'XUmg'U'mYUft"'=Z'mci
UfY'i bUV'Y'hc'gi va ]hmci f'Ugg][ ba YbhXi Y'hc'U'ZJi 'hk ]h\ 'Hi fb]h]b'mci 'a UmUdd'mZcf'Ub'Y! hy'bg]cbž'Vi hmci
a i ghfYhJ]b'mci f'h]W\_Yhbi a VYf'Zfca '9! hy'fbU''Gi ddcfhfU'cb[ 'k ]h\ 'Ubmch\Yf'fy'Yj UbhXcW a Ybhgt'hc
]bWi XY'Ug'Yj ]XYbW' 'hc'gi ddcfhmci f'Y! hy'bg]cb'Udd']WUh]cb"'=Zmci 'Ya U]''9! hy'fbU''Gi ddcfhmci 'k ]'`
Ui hca Uh]WJ'`mfYW']j Y'U'h]W\_Yhbi a VYfZ'Vi h]Zmci 'hY'Yd\cbY'mci 'k ]``bYYX'hc'gdYW]Z]WJ'`mUg\_'Zcf'cbY''
Hi fb]h]b'U'gc'dfcj ]XYg'i dXUhy'g'cb'h\Y]f'gmghYa 'ghUh' g'cb'Hk]hyf''

; YbYfU`mž'UggYgga YbhiHug\_g'a i ghVY'gi Va ]hhYX'Y`YVWfcb]\WJ``mij ]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ ba Ybh''=b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk ]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k ]h\U`hYfbUh]j Y'gi Va ]gg]cb'XYHJ]`g"

cfi]bZcfa Uhjcbicbi\ckihcigi Va ]hUgg][ ba Ybhgicbi]bYij ]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va ]hUgg][ ba Ybha ccXiY

## 5 WUXYa ]W<cbYghmUbX D`U[]Uf]ga

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=hWJbihU\_Yia Ubm Zcfa gžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hiUW\_bck iYX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga ]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

• i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'gh XYbh'Uhil BGK