

## **NEW BRITISH AND JAPANESE SHIPS FOR CLASH OF ARMS' *COMMAND AT SEA* SERIES**

by Gary Greenhalgh

### **Royal Navy Battle Class (Historical Destroyers)**

The Battle Class of fleet destroyers was the last class of wartime destroyers to be completed. These ships were equipped with four 4.5-inch guns in dual mounts forward, plus a 4-inch starshell gun aft, and were introduced in 1945 (too late to see action). Data sheet represents the first group of sixteen ships.

### **Royal Navy CA/CH/CO/CR Class (Historical Destroyers)**

The CA/CH/CO/CR Class of fleet destroyers was the last of the war standard design introduced on the O & P Class of 1941. These ships were equipped with four single 4.5-inch guns and were introduced in 1944. Data sheet represents CA class; CH/CO/CR were similar, but equipped with only a single quadruple torpedo mount. CH Class consisted of *Childers* (leader), *Chaplet*, *Charity*, *Chequers*, *Cheviot*, *Chevron*, *Chieftan*, *Chivalrous*. CO Class consisted of *Cossack* (leader), *Cockade*, *Comet*, *Comus*, *Consort*, *Constance*, *Contest*, *Concord*. CR Class consisted of *Crown* (leader), *Crispin*, *Creole*, *Cromwell*, *Crescent*, *Crozier*, *Crusader*, *Crystal*.

### **Royal Navy *Invincible* Class (Cancelled Battlecruisers)**

The *Invincible* class of large battlecruisers was similar to the famous *Nelson* class of 16-inch gunned battleships of WWII fame, only 15,000 tons larger and eight knots faster. All were cancelled in 1921, so this ship form is intended for anyone wishing to do "what if" scenarios using these ships.

### **Japanese *Tosa* Class (Cancelled Battleships)**

The *Tosa* class battleships were similar to the Nagato class of 16-inch gunned battleships, but mounting a fifth 16.1-in twin turret astern. Both the *Tosa* and sister *Kaga* were cancelled in 1922, with the *Kaga* being converted to the famous carrier of pearl Harbor and Midway fame and *Tosa* used as a target in order to study the effects of bombs and torpedoes on armored hulls.

Ship Reference Sheet						1. Ship name <b>Armada</b>													
2. Ship class		3. Ship Type		4. Size class		5. Speed		6. Propulsion		7. Crew		8. Total Mounts		9. Armor Class					
<b>Battle Class</b>		<b>DD</b>		<b>C</b>		<b>36</b>		<b>Steam Turbine</b>		<b>247</b>		<b>13</b>		<b>0</b>					
Radars (Annex G)						Damage Point Effects													
Name	Function	Range Large	Range Small	Range Vsmall		Percentage Damage	0%	25%	50%	75%	90%	100%							
<b>Type 276</b>	<b>SS</b>	<b>22</b>	<b>11</b>	<b>5.5</b>		<b>Damage Points</b>	<b>0</b>	<b>22</b>	<b>43</b>	<b>65</b>	<b>77</b>	<b>86</b>							
<b>Type 275</b>	<b>FC-DP</b>	<b>15</b>	<b>7.5</b>	<b>3.75</b>		<b>Surface Speed</b>	<b>36</b>	<b>27</b>	<b>18</b>	<b>9</b>	<b>0</b>	<b>Sinks</b>							
“						<b>Submerged Speed</b>													
“						Embarked Aircraft <b>N/A</b>													
Sonar (Annex H)						Passive Range													
Name	Type	Active Range	Surf Ship	Submarine	Torpedo														
<b>Type 144</b>	<b>Keel</b>	<b>2.5</b>	<b>5.5</b>	<b>1.4</b>	<b>2.8</b>														
<b>ASDIC</b>																			
Guns (Annex C)						Short Range (7)						Med Range (5)		Long Range (2)		Extreme Range (1)		FC Radar, Strength, Rng	
Arc(bb)Mts	Name	Shell Type	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt		
<b>F (2)2</b>	<b>MkIII</b> <b>4.5 in/45</b>	<b>HE</b>	<b>0-3.1</b>	<b>3</b>	<b>17</b>	<b>3.2-9.2</b>	<b>3</b>	<b>14</b>	<b>9.3-15.4</b>	<b>1</b>	<b>6</b>	<b>15.5-20.5</b>	<b>1</b>	<b>6</b>				<b>+1</b>	
		<b>SAP</b>		<b>12</b>	<b>11</b>		<b>9</b>	<b>8</b>		<b>2</b>	<b>3</b>		<b>4</b>	<b>3</b>					
<b>A (1)1</b>	<b>Mk XIX</b> <b>4 in/40</b>	<b>Star shell</b>	<b>0-1.7</b>			<b>1.8-5.2</b>			<b>5.3-8.7</b>			<b>8.8-11.6</b>							
vs. Belt Armor																		vs. Deck Armor	
Area AA Guns: <b>Mk III 4.5 in/45</b>						Area AA Range: <b>5.0</b>						Area AA Strength: <b>0.7</b>							
Light AA Guns: <b>(2)3 40mm Bofors, (1)6 40mm Bofors</b>						Light AA Strength: <b>2.2</b>													
Anti-Submarine Warfare Systems (Annex D)																			
Arc(bb)Mts	Name	Range	PH	Dam Pts	Remarks														

Depth Change Armamentt: <b>(1)2 DC Rails w/ 9 DC per rail</b> <b>(1)4 Mk IV K-Guns w/ 6 DC</b>		Max Pattern Size: <b>3, 5, 7, 10, 14</b>		Max Pattern Depth: <b>Int 1</b>			
DC Type: <b>Mk VII</b>		Total DC's Carried: <b>18 (reloads)</b>					
Torpedoes (Annex E)							
Arc(bb)Mts	Torpedo Type	# Torps per mt	Speed kts	Dist/Tn yds	Range yds	Damage Points	Remarks
<b>P&amp;S (4)2</b>	<b>Mk X 533mm TT w/ 4 Mk IX Torp.</b>	<b>4</b>	<b>41</b>		<b>11000</b>	<b>92</b>	
			<b>35</b>		<b>15000</b>	<b>92</b>	

**Notes and Remarks:**

- (1) First group (sixteen ships in class): Armada, Barfleur, Cadiz, Camperdown, Finisterre, Gabbard, Gravelines, Hogue, Lagos, St. James, St. Kitts, Saintes, Sluys, Solebay, Tarafalgar, Vigo.
- (2) Torpedo & gun data checked against 'British and Dominion Warships of WWII' (Lenton/Colledge)
- (3) Cadiz, Gravelines, St. James, St. Kitts, Saintes, Sluys and Trafalgar armed with 14 40mm Bofors {(2)4 & (1)6}, Light AA strength: 2.6
- (4) Last of the wartime British destroyers

Ship Reference Sheet						1. Ship name <b>Caesar</b>									
2. Ship class <b>CA Class</b>		3. Ship Type <b>DD</b>	4. Size class <b>C</b>	5. Speed <b>37</b>		6. Propulsion <b>Steam Turbine</b>		7. Crew <b>186</b>		8. Total Mounts <b>12</b>		9. Armor Class <b>0</b>			
Radars (Annex G)		Range Large	Range Small	Range Vsmall		Damage Point Effects									
Name	Function					Percentage Damage	0%	25%	50%	75%	90%	100%			
<b>Type 276</b>	<b>SS</b>	<b>22</b>	<b>11</b>	<b>5.5</b>		<b>Damage Points</b>	<b>0</b>	<b>17</b>	<b>33</b>	<b>50</b>	<b>60</b>	<b>66</b>			
<b>Type 285</b>	<b>FC-A</b>	<b>6</b>	<b>3</b>	<b>1.5</b>		<b>Surface Speed</b>	<b>37</b>	<b>28</b>	<b>18</b>	<b>9</b>	<b>0</b>	<b>Sinks</b>			
“						<b>Submerged Speed</b>									
“						Embarked Aircraft <b>N/A</b>									
Sonar (Annex H)		Active Range	Passive Range												
Name	Type		Surf Ship	Submarine	Torpedo										
<b>Type 144 ASDIC</b>	<b>Keel</b>	<b>2.5</b>	<b>5.5</b>	<b>1.4</b>	<b>2.8</b>										
Guns (Annex C)		Shell Type	Short Range (7)			Med Range (5)			Long Range (2)			Extreme Range (1)		FC Radar, Strength, Rng	
Arc(bbl)Mts	Name		Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	
<b>F/A (1)4</b>	<b>MkIV 4.5 in/45</b>	<b>HE</b>	<b>0-3.1</b>	<b>3</b>	<b>17</b>	<b>3.2-9.2</b>	<b>3</b>	<b>14</b>	<b>9.3-15.4</b>	<b>1</b>	<b>6</b>	<b>15.5-20.5</b>	<b>1</b>	<b>6</b>	
		<b>SAP</b>		<b>12</b>	<b>11</b>		<b>9</b>	<b>8</b>		<b>2</b>	<b>3</b>		<b>4</b>	<b>3</b>	
vs. Belt Armor _____ vs. Deck Armor _____															
Area AA Guns:		<b>Mk IV 4.5 in/45</b>					Area AA Range:		<b>5.0</b>		Area AA Strength: <b>0.7</b>				
Light AA Guns:		<b>(2)1 40mm Bofors, (2)1 40mm Bofors, (2)4 20mm Oerlikon</b>					Light AA Strength: <b>1.8</b>								
Anti-Submarine Warfare Systems (Annex D)															
Arc(bbl)Mts	Name	Range	PH	Dam Pts	Remarks										

Depth Charge Armament: <b>(1)2 DC Rails w/ 9 DC per rail</b> <b>(1)4 Mk IV K-Guns w/ 6 DC</b>		Max Pattern Size: <b>3, 5, 7, 10, 14</b>			Max Pattern Depth: <b>Int 1</b>	
DC Type: <b>Mk VII</b>		Total DC's Carried: <b>38 (reloads)</b>				
Torpedoes (Annex E)						
Arc(bbl)Mts	Torpedo Type	# Torps per mt	Speed kts	Dist/Tn yds	Range yds	Damage Points
<b>P&amp;S (4)2</b>	<b>Mk X 533mm TT w/ 4 Mk IX Torp.</b>	<b>4</b>	<b>41</b>		<b>11000</b>	<b>92</b>
			<b>35</b>		<b>15000</b>	<b>92</b>

**Notes and Remarks:**

- (1) Eight ships in class: Caesar, Cavendish (leader), Cambrian, Caprice, Carron, Carysfort, Cassandra, Cavalier
- (2) Mk IV 4.5 in/45 designed to fit 4.7-inch single mounts
- (3) Type 285 is a high-angle AA fire control radar; data in 'Rising Sun' annex does not reflect this.
- (4) Torpedo & gun data checked against 'British and Dominion Warships of WWII' (Lenton/Colledge)

Ship Reference Sheet					1. Ship name <b>Invincible</b>											
2. Ship class <b>Invincible</b>		3. Ship Type <b>BC</b>	4. Size class <b>A</b>	5. Speed <b>31</b>	6. Propulsion <b>Steam Turbine</b>		7. Crew <b>1,716</b>		8. Total Mounts <b>22</b>		9. Armor Class <b>32/11/150</b>					
Radars (Annex G) Name      Function		Range Large	Range Small	Range Vsmall	Damage Point Effects Percentage Damage      0%      25%      50%      75%      90%      100%											
<b>Type 273</b>		<b>SS</b>	<b>18</b>	<b>9</b>	<b>4.5</b>	Damage Points		<b>0</b>	<b>231</b>	<b>462</b>	<b>692</b>	<b>831</b>	<b>923</b>			
<b>Type 282 (5x)</b>		<b>FC-A</b>	<b>6</b>	<b>3</b>	<b>1.5</b>	Surface Speed		<b>31</b>	<b>23</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>Sinks</b>			
<b>Type 283 (4x)</b>		<b>FC-A</b>	<b>6</b>	<b>3</b>	<b>1.5</b>	Submerged Speed										
<b>Type 284</b>		<b>FC-S</b>	<b>24</b>	<b>12</b>	<b>6</b>	Embarked Aircraft <b>Walrus (1)</b> <b>Catapult (1) 'B' turret</b>										
Sonar (Annex H) Name      Type		Active Range	Passive Range Surf Ship		Submarine		Torpedo									
Guns (Annex C) Arc(bb)Mts      Name		Shell Type	Short Range (7) Range      Pen      Dam/Mt			Med Range (5) Range      Pen      Dam/Mt		Long Range (2) Range      Pen      Dam/Mt		Extreme Range (1) Range      Pen      Dam/Mt		FC Radar, Strength, Rng				
<b>2F/P&amp;S (3)3</b>		<b>MkI 16 in/45</b>	<b>AP</b>	<b>0- 6.0</b>	<b>71</b>	<b>48</b>	<b>6.1- 18.0</b>	<b>55</b>	<b>35</b>	<b>18.1- 30.0</b>	<b>12</b>	<b>26</b>	<b>30.1- 40.0</b>	<b>22</b>	<b>23</b>	<b>+1</b>
			<b>HE</b>		<b>11</b>	<b>89</b>		<b>8</b>	<b>76</b>		<b>2</b>	<b>66</b>		<b>3</b>	<b>63</b>	
<b>2P/2S/ (2)4</b>		<b>Mk XXII 6 in/50</b>	<b>AP</b>	<b>0- 3.9</b>	<b>30</b>	<b>9</b>	<b>4.0- 11.6</b>	<b>23</b>	<b>5</b>	<b>11.7- 19.4</b>	<b>5</b>	<b>3</b>	<b>19.5- 25.8</b>	<b>8</b>	<b>3</b>	
			<b>HE</b>		<b>4</b>	<b>16</b>		<b>3</b>	<b>12</b>		<b>1</b>	<b>10</b>		<b>1</b>	<b>10</b>	
<b>2P*PQ/ 2S*SQ (2)4</b>		<b>Mk XXII 6 in/50</b>	<b>AP</b>	<b>0- 3.9</b>	<b>30</b>	<b>9</b>	<b>4.0- 11.6</b>	<b>23</b>	<b>5</b>	<b>11.7- 19.4</b>	<b>5</b>	<b>3</b>	<b>19.5- 25.8</b>	<b>8</b>	<b>3</b>	
			<b>HE</b>		<b>4</b>	<b>16</b>		<b>3</b>	<b>12</b>		<b>1</b>	<b>10</b>		<b>1</b>	<b>10</b>	
<b>2P/2S/ PA/SA (1)6</b>		<b>Mk VIII 4.7 in/40</b>	<b>SAP</b>	<b>0- 2.4</b>	<b>13</b>	<b>10</b>	<b>2.5- 7.2</b>	<b>10</b>	<b>7</b>	<b>7.3- 12.0</b>	<b>2</b>	<b>3</b>	<b>12.1- 16.0</b>	<b>4</b>	<b>3</b>	
			<b>HE</b>		<b>3</b>	<b>16</b>		<b>2</b>	<b>13</b>		<b>1</b>	<b>6</b>		<b>1</b>	<b>5</b>	
vs. Belt Armor										vs. Deck Armor						
Area AA Guns:		<b>Mk VIII 4.7 in/40</b>					Area AA Range:		<b>4.0</b>		Area AA Strength: <b>1.0</b>					
Light AA Guns:		<b>(4)10 Mk VIII 2 pdr ,</b>			<b>(1)20 20mm Oerlikon</b>			Light AA Strength: <b>12.4</b>								
Anti-Submarine Warfare Systems (Annex D)																
Arc(bb)Mts      Name		Range	PH	Dam Pts	Remarks											
Depth Change Armament:		Max Pattern Size:				Max Pattern Depth:										
DC Type:		Total DC's Carried:														
Torpedoes (Annex E) Arc(bb)Mts      Torpedo Type		# Torps per mt	Speed kts	Dist/Tn yds	Range yds	Damage Points	Remarks									
<b>P/S (1)2</b>		<b>24.5-in TT w/ 6 Mk I Torp.</b>	<b>6</b>	<b>35</b>		<b>15000</b>	<b>84</b>	<b>Torpedoes can be fired +10/-10 degrees off ship's heading (as per Nelson class)</b>								
				<b>30</b>		<b>20000</b>	<b>84</b>									
Notes and Remarks:																
<p>(1) Four projected ships in class (all cancelled in 1921 due to Washington Naval Treaty): Invincible, Inflexible, Indomitable, Indefatigable.</p> <p>(2) Majority of data obtained from 'British and Dominion Warships of WWII' (Lenton/Colledge)</p> <p>(3) Standard displacement listed as 48,000 tons.</p> <p>(4) Similar in overall design to smaller Nelson/Rodney and based sensor and AA data these ships circa mid-1942 along with Type 284 main battery FC radar added.</p> <p>(5) Assume catapult mounted on 'B' turret as per Nelson class.</p>																

Ship Reference Sheet						1. Ship name <b>Tosa</b>											
2. Ship class <b>Tosa</b>		3. Ship Type <b>BB</b>	4. Size class <b>A</b>	5. Speed <b>26</b>		6. Propulsion <b>Steam Turbine</b>		7. Crew <b>1,716</b>		8. Total Mounts <b>31</b>		9. Armor Class <b>30/13/135</b>					
Radars (Annex G)			Range Large	Range Small	Range Vsmall	Damage Point Effects											
Name	Function					Percentage Damage	0%	25%	50%	75%	90%	100%					
						Damage Points	<b>0</b>	<b>190</b>	<b>379</b>	<b>569</b>	<b>682</b>	<b>758</b>					
						Surface Speed	<b>26</b>	<b>20</b>	<b>13</b>	<b>7</b>	<b>0</b>	<b>Sinks</b>					
						Submerged Speed											
						Embarked Aircraft <b>Jake (1)</b> <b>Catapult (1) Midships</b>											
Sonar (Annex H)		Active Range	Passive Range														
Name	Type		Surf Ship	Submarine	Torpedo												
<b>Type 93 Model 3</b>	<b>NA</b>	<b>NA</b>	<b>3.5</b>	<b>0.8</b>	<b>2.5</b>												
Guns (Annex C)			Shell Type	Short Range (7)			Med Range (5)			Long Range (2)			Extreme Range (1)		FC Radar, Strength, Rng		
Arc(bbl)Mts	Name		Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt	Range	Pen	Dam/Mt			
<b>2F/P&amp;S/2A (2)5</b>	<b>3<sup>rd</sup> Year 16.1 in/45</b>	<b>AP</b>	<b>0-6.3</b>	<b>80</b>	<b>72</b>	<b>6.4-18.9</b>	<b>62</b>	<b>53</b>	<b>19.0-31.5</b>	<b>14</b>	<b>38</b>	<b>31.6-42.0</b>	<b>25</b>	<b>34</b>			
		<b>HE</b>		<b>11</b>	<b>131</b>		<b>8</b>	<b>112</b>		<b>2</b>	<b>98</b>		<b>3</b>	<b>93</b>			
<b>2P/2S/(1)20</b>	<b>3<sup>rd</sup> Year 5.5 in/50</b>	<b>SpCOM</b>	<b>0-3.3</b>	<b>16</b>	<b>10</b>	<b>3.4-9.9</b>	<b>13</b>	<b>7</b>	<b>10.0-16.5</b>	<b>3</b>	<b>2</b>	<b>16.6-22.0</b>	<b>5</b>	<b>2</b>			
		<b>COM</b>		<b>8</b>	<b>12</b>		<b>6</b>	<b>9</b>		<b>1</b>	<b>5</b>		<b>3</b>	<b>3</b>			
		<b>HE</b>		<b>4</b>	<b>15</b>		<b>3</b>	<b>11</b>		<b>1</b>	<b>3</b>		<b>1</b>	<b>5</b>			
<b>P/S (2)4</b>	<b>Type 89 5 in/40</b>	<b>COM</b>	<b>0-2.4</b>	<b>7</b>	<b>14</b>	<b>2.5-7.2</b>	<b>5</b>	<b>11</b>	<b>7.3-12.0</b>	<b>1</b>	<b>5</b>	<b>12.1-16.0</b>	<b>2</b>	<b>4</b>			
		<b>HE</b>		<b>3</b>	<b>18</b>		<b>3</b>	<b>15</b>		<b>1</b>	<b>7</b>		<b>1</b>	<b>6</b>			
vs. Belt Armor												vs. Deck Armor					
Area AA Guns: <b>Type 89 5 in/40</b>						Area AA Range: <b>4.0</b>						Area AA Strength: <b>1.6</b>					
Light AA Guns: <b>(1)20 Type 96 25mm/60</b>						Light AA Strength: <b>2.5</b>											
Anti-Submarine Warfare Systems (Annex D)																	
Arc(bbl) Mts	Name	Range	PH	Dam Pts	Remarks												

Depth Change Armament:		Max Pattern Size:			Max Pattern Depth:		
DC Type:		Total DC's Carried:					
Torpedoes (Annex E)		# Torps per mt	Speed kts	Dist/Tn yds	Range yds	Damage Points	Remarks

**Notes and Remarks:**

- (1) Two projected ships in class: Tosa, Kaga; .Tosa cancelled due to Washington Naval Treaty and used as target; Kaga converted to aircraft carrier.
- (2) Majority of data obtained from 'Japanese Warships of WWII' (Watts)
- (3) Standard displacement listed as 38,500 tons.
- (4) Similar in overall design to Nagato with an additional 16-inch turret in 'X' position astern; based sensor and AA data this ship circa mid-1942.
- (5) Assume fixed midship-mounted catapult.