The group G is isomorphic to the group labelled by [48, 28] in the Small Groups library. Ordinary character table of $G \cong C2$. S4 = SL(2,3). C2:

4a	3a	6a	4b	8a	8b
1	1	1	1	1	1
1	1	1	-1	-1	-1
2	-1	-1	0	0	0
-1	0	0	-1	1	1
-1	0	0	1	-1	-1
0	-1	1	0	$E(8) - E(8)^3$	$-E(8) + E(8)^3$
0	-1	1	0	$-E(8) + E(8)^3$	$E(8) - E(8)^3$
0	1	-1	0	0	0

Trivial source character table of $G \cong C2$. S4 = SL(2,3) . C2 at p=2:

Normalisers N_i

p-subgroups of G up to conjugacy in G	P_1		P_2		P_3	P_4	P_5	P_6		P_7	
Representatives $n_j \in N_i$	1a	3a	1a	3a	1a	1a	1a	1a	3a	1a	
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 2 \cdot \chi_8$	16	4	0	0	0	0	0	0	0	0	
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 1 \cdot \chi_6 + 1 \cdot \chi_7 + 1 \cdot \chi_8$	16	-2	0	0	0	0	0	0	0	0	
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	8	2	8	2	0	0	0	0	0	0	
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	8	-1	8	-1	0	0	0	0	0	0	
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 2 \cdot \chi_3 + 1 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	12	0	12	0	4	0	0	0	0	0	
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	4	1	4	1	0	2	0	0	0	0	
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 0 \cdot \chi_4 + 1 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	6	0	6	0	2	2	2	0	0	0	
$1 \cdot \chi_1 + 1 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	2	2	2	2	2	0	0	2	2	0	
$0 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	2	-1	2	-1	2	0	0	2	-1	0	
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 1 \cdot \chi_3 + 1 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	6	0	6	0	2	0	0	0	0	2	
$1 \cdot \chi_1 + 0 \cdot \chi_2 + 0 \cdot \chi_3 + 0 \cdot \chi_4 + 0 \cdot \chi_5 + 0 \cdot \chi_6 + 0 \cdot \chi_7 + 0 \cdot \chi_8$	1	1	1	1	1	1	1	1	1	1	

 $P_2 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(22,38)(25,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48)]) \cong \mathbb{C}_2$

 $P_3 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(22,38)(25,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48)(19,20,36,37)(25,36,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48)(19,20,36,37)(25,36,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48)(19,20,36,37)(25,36,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(35,46)(39,47)(43,48)(43,45)(43,48)(43,$

 $P_4 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(22,38)(25,40)(26,41)(28,42)(32,44)(33,45)(35,46)(39,47)(43,48), \\ (1,2,6,10)(3,14,14,34)(4,9,16,24)(5,8,17,23)(7,27,21,11)(12,33,29,45)(13,32,30,44)(15,38,31,22)(19,41,36,26)(20,40,37,25)(28,48,42,43)(35,39,46,47)] \cong CA$

 $P_5 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36,26)(20,47)(23,34)(15,38,31,22)(19,41,36,26)(20,40,37,25)(28,48,42,43)(35,39,46)(19,36,37)(25,26,40,41)(28,42)(32,44)(33,45)(49,43,43)(19,20,36,37)(25,26,40,41)(28,42)(32,44)(33,45)(49,43,43)(49,49,43)(4$

 $P_6 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,20,36,37)(25,26,40,41)(32,33,44,45), (1,4,6,16)(2,8,10,23)(3,12,14,29)(5,31,17,15)(7,19,21,36)(9,38,24,22)(11,25,27,40)(13,42,30,28)(18,32,34,44)(20,46,37,35)(26,47,41,39)(33,48,45,43)]) \\ \cong Q_8 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(25,27,40)(13,20,36,37)(25,26,40,41)(25,27,40)(13,20,36,37)(25,26,40,41)(25,27,40)(13,20,36,37)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40)(25,26,40,41)(25,27,40$ $P_7 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(22,38)(25,40)(20,47)(33,45)(35,46)(39,47)(43,48), \\ (1,31,6,15)(2,38,40,22)(3,42,14,28)(4,5,16,17)(7,46,21,35)(8,9,23,24)(11,47,27,39)(12,13,29,30)(18,48,34,43)(19,20,36,37)(25,26,40,41)(21,48,30,18,29,43,13,34)] \\ \cong C8$

 $P_8 = Group([(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(22,38)(25,40)(25$

 $S_1 = S_2 = S_2$

 $N_3 = Group([(1,31,6,15)(2,38,10,22)(3,42,14,28)(4,5,16,17)(7,21)(8,23)(9,24)(11,27)(22,38)(25,40)(26,41)(28,42)(32,44)(33,45)(35,46)(29,43)(12,43,29)(25,40)(26,41)(28,42)(32,44)(33,45)(35,46)(29,43,42)(11,27,27,39)(12,13,29,30)(18,48,43,43)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,20,36,37)(25,26,40,41)(25,20,36,37)(25,26,40,41)(25,20,36,37)(25,26,40,41)(25,20,36,37)(25,26,40,41)(25,20,36,37)(25,26,40,41)(25,20,36,37)(25,20,36$ $N_4 = Group([(1,2,6,10)(3,18,14,34)(4,9,16,24)(5,8,17,23)(7,27,21,11)(12,33,29,45)(13,32,30,44)(15,38,31,22)(19,41,36,26)(20,40,37,25)(28,48,42,43)(35,39,46,47),(1,6)(2,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,43,34,48)(19,37,36,20)(25,41,40,26)(32,45,44,33)]) \\ \cong Q8$

 $N_5 = Group([(1,2,6,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(32,33,44,45), (1,4,6,16)(2,8,10,23)(3,42,14,29)(5,31,17,15)(7,19,21,36)(9,38,24,22)(11,25,27,40)(13,42,30,28)(18,32,34,44)(20,46,37,35)(26,47,41,39)(33,48,45,43)]) \\ \cong Q16 \quad N_5 = Group([(1,2,6,10)(3,14)(4,16)(5,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(32,33,44,45)(32,34,44)(32,$

 $N_6 = Group([(1,4,5,13)(2,3,3,4,4)(2)(2,3,3,4,4)(2)(3,3,4,4)(1,3,4)(4,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4)(1,3,4,4)(1,3,4)(1,3,4,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)(1,3,4,4,4)($

 $N_7 = Group([(1,8,15,24,6,23,31,9)(2,16,22,5,10,4,38,17)(3,32,28,45,14,44,42,33)(7,40,35,26,21,25,46,41)(11,19,39,37,27,36,47,20)(12,48,30,18,29,43,13,34),(1,31,6,15)(2,38,10,22)(3,42,14,28)(4,5,16,17)(7,21)(8,23)(9,24)(11,27)(12,29)(13,30)(15,31)(18,34)(19,20,36,37)(25,26,40,41)(11,27)(22,38)(25,40)(26,41)(28,42)(32,44)(33,45)(35,39,46,47)]) \\ \cong Q16 \quad N_7 = Group([(1,8,15,24,6,23,31,9)(2,16,22,5,10,4,38,17)(3,32,28,45,14,44,23)(19,20,36,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(20,37)(25,26,40,41)(11,27)(12,29)(13,30)(15,31)(18,34)(19,36)(19,$

 $N_8 = Group([(1,4,6,16)(2,8,10,23)(3,42,44)(33,45)(25,46)(23,44)(13,23)(34,44)(20,46,37,35)(26,47,41,39)(33,48,45,43)(19,20,36,37)(25,26,40,41)(32,33,44,45)(19,36)(20,37)(25,36,40,41)(25,36,40)($