INSTALLATION GUIDE
•
OWNER'S GUIDE

PASSLOCK / PASSKEY SYSTEM • MODEL 721

CONTENTS

BULLDOG SECURITY

Technical Assistance
All tech personnel are expertly qualified to answer any technical questions.
Technicians are available Monday through Friday from 9:00 a.m. until 8:00 p.m. and Saturday 10:00 a.m. until 4:00 p.m.
Address
288 Canton Avenue • Wintersville, Ohio 43953
Telephone
Phone: 740-264-4710 • 800-878-8007 • Fax: 740-264-7306

TECHNICAL ASSISTANCE

Should you need help. First check our website at www.bulldogsecurity.com/wires.htm or call our toll-free Tech Support Hotline Monday through Friday 9AM-8PM and Saturday 10AM-4PM EST at 800-878-8007.

You must give the following information:
- Name
- Telephone Number with Area Code (Fax number if applicable)
- Year, Make, and Model of the vehicle
- The model number of the system you are installing
- The type of assistance you are requesting

If you give the above information you will be called back as soon as possible, usually within 10 minutes.

PASSLOCK HISTORY

The Bulldog Model 721 interface module is used when installing remote start products in GM vehicles equipped with he PASSKEY, PASSLOCK I and PASSLOCK II anti-theft system. This model allows easy interfacing while maintaining the OEM system's integrity. The Model 721, when installing with the passlock I system will provide a ground to the "bulb check" wire, immediately after the vehicle starts, it will provide the proper resistor code (R-Code) to the instrument panel cluster (IPC). The Model 721 has no affect on the Passkey or Passlock system when the remote start is not in use. The factory Passlock anti-theft system remains fully functional.

The GM Passlock system is a key-based, fuel shutdown, anti-theft system. The system requires that the key cylinder be mechanically turned using a key. When the key cylinder is properly turned, it generates the R-Code, which is sent to the IPC. The IPC, which houses the Passlock decoder, then interprets the signal. Unlike the Passkey system, Passlock must see the correct resistance code at the correct time. When the ignition switch is turned to the CRANK position, the "bulb check" wire is switched to ground. This starts a time window during which the IPC analyzes the R-Code. If the R-Code is valid and received in the proper window of time, the IPC sends a code via data bus to the power train control module (PCM) to enable the fuel system. The vehicle will then start and stay running. If the R-Code is incorrect, the vehicle will start and run for a moment and then shut off.

PASSKEY INSTALLATION

NOTE: Never connect the wiring on the Passkey or Passlock system without first setting the dipswitch positions. Installing the unit with all dipswitches in the down or (0) position could cause damage in your vehicle and/or Passkey or Passlock system.

1. Locate the 2 wire harness in the steering column coming from the ignition switch cylinder. This harness should contain 2 **WHITE** wires or 1 **WHITE** or 1 **PURPLE** wire.
2. To measure resistance on the passkey pillet on the key, see figure 1.
3. Cut the **WHITE** or **PURPLE** wire in half.
4. Strip back the other **WHITE** or **PURPLE** wire to expose the copper for a connection.
5. Look up the value read from the meter on the chart and set the switches remembering a (1) on the chart indicates a switch in the "up" position.
6. Attach the **GREEN** wire to the key cylinder end of the cut **WHITE** or purple wire.
7. Attach the **YELLOW** wire to the remaining end of the cut **WHITE** or **PURPLE** wire.
8. Attach the **BLUE** wire to the stripped back **WHITE** or **PURPLE** wire.
9. Attach the **RED** wire to a fused constant 12V wire fused at 10 Amps.
10. The **ORANGE** wire and **PURPLE** wire are not used.
11. Connect the **WHITE** wire to the (-) **WHITE** 16awg on the remote starters relay pack.
12. Set switch 11 to the "on" or "down" position and 12 to the "off" or "up" position.

For testing resistor value on Passkey systems, see figure 1.

PASSLOCK I INSTALLATION

NOTE: Never connect the wiring on the Passkey or Passlock system without first setting the dipswitch positions. Installing the unit with all dipswitches in the down or (0) position could cause damage in your vehicle and/or Passkey or Passlock system.

1. Locate the 3 wire harness in the steering column coming from the Passlock key cylinder. This harness should contain a **YELLOW**, **BLACK** and **WHITE** wire or **WHITE WITH BLACK STRIPE** wire, **BLACK** and **BLACK**.
2. Cut the **YELLOW** or **BLACK** wire.
3. With the key in the "on" position, use an ohm meter to measure the resistance from the key cylinder side of the **YELLOW** wire to the **BLACK** wire. After the measurement is made, turn the key to the "off" position.
4. Look up the value read from the meter on the chart and set the switches remembering a (1) on the chart indicates a switch in the "up" position.
5. Attach the **GREEN** wire to the key cylinder end of the cut **YELLOW** or **BLACK** wire.
6. Attach the **YELLOW** wire to the remaining end of the cut **YELLOW** or **BLACK** wire.
7. Attach the **BLUE** wire to the **BLACK** or (BLK)0 wire in the 3 wire harness.
8. Attach the **RED** wire to a fused constant +12V wire.
9. Attach the **VIOLET** wire to the bulb check wire. 22 ga. wire cavity "D" or "E", wire shows ground when cranking.

TO HAVE THE RESISTANCE PRESENT BEFORE AND AFTER CRANKING, DO STEPS 10-12.

10. Attach the **WHITE** wire to the ignition wire on the remote starter. (negative out only) (**WHITE WITH BLACK STRIPE** 16 ga. wire on the relay harness)
11. Attach the **ORANGE** wire to the starter wire on the remote starter. (negative out only) (**YELLOW WITH BLACK STRIPE** 16 ga. wire on the relay harness)
12. Set switch 12 to the "on" or "down" position and 11 to the "off" or "up" position.

For testing resistor value, see figure 2a.

PASSLOCK II INSTALLATION

NOTE: Never connect the wiring on the Passkey or Passlock system without first setting the dipswitch positions. Installing the unit with all dipswitches in the down or (0) position could cause damage in your vehicle and/or Passkey or Passlock system.

1. Locate the 3 18 ga. wires in the steering column coming from the ignition switch cylinder. This harness should contain a **RED WITH WHITE STRIPE** wire, **ORANGE WITH BLACK STRIPE** wire and **YELLOW** wire.
2. Cut the **YELLOW** wire in half.
3. With the key in the "cranking" position, use an ohm meter to measure the resistance from the key cylinder side of the **YELLOW** wire to a stripped back portion of the **ORANGE WITH BLACK STRIPE** wire. Do this several times, making sure you have the correct resistance value.
4. Look up the value read from the meter on the chart and set the switches remembering a (1) on the chart indicates a switch in the "up" position.
5. Attach the **GREEN** wire to the key cylinder end of the cut **YELLOW**.
6. Attach the **YELLOW** wire to the remaining end of the cut **YELLOW** wire.
7. Attach the **BLUE** wire to the **ORANGE WITH BLACK STRIPE** wire, simply tie in.
8. Attach the **RED** wire to a fused constant +12V wire fused at 10 awg.
9. The **ORANGE** wire and the **PURPLE** wire are not used.
10. Connect the **WHITE** wire to the (-) **WHITE** 16 awg on the remote starters relay pack.
11. Set switch 11 to the "on" or "down" position and 12 to the "off" or "up" position.

For testing resistor value, see figure 2b.

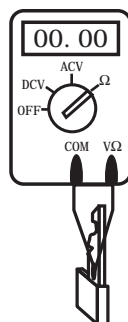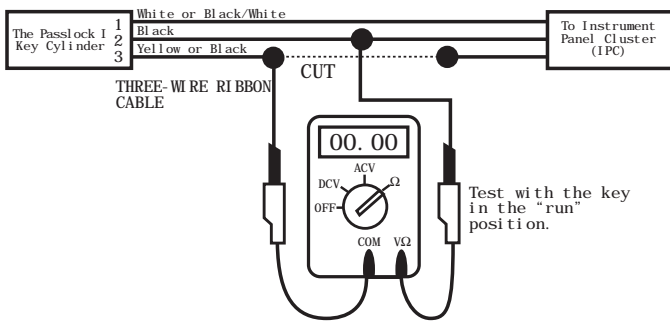**FIGURE 1**
Testing for Resistor Value,
Passkey

NOTE: Test probes should be placed on each side of the pill embedded in the key to read the resistance.

2

The Passlock I Key Cylinder
1
2
3

White or Black/White
Black
Yellow or Black

To Instrument Panel Cluster (IPC)

THREE-WIRE RIBBON CABLE

CUT

00.00

ACV
DCV
OFF
Ω
COM VΩ

Test with the key in the "run" position.

The Passlock I Key Cylinder
1
2
3

Red/White
Orange/Black
Yellow

To Instrument Panel Cluster (IPC)

THREE 18 GA. WIRES IN IGNITION WIRE HARNESS

CUT

00.00

ACV
DCV
OFF
Ω
COM VΩ

Test during cranking.

MAKING CONNECTIONS

TWO-WIRE PASSKEY SYSTEM

The Passkey Cylinder
1
2

White or Purple
White or Purple

VATS

CUT

Green   Blue   Yellow

ALL WIRES ARE 22 AWG

BULLDOG MODEL 721
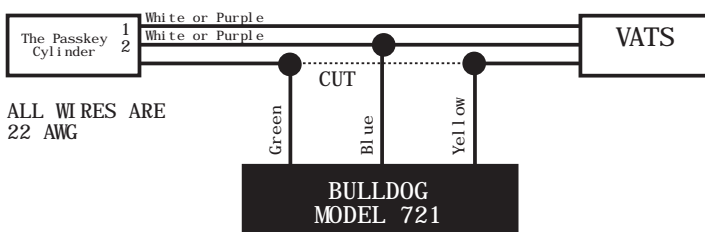
THREE-WIRE PASSLOCK I AND PASSLOCK II SYSTEMS

1
2
3

White or Red/White
Black or Orange/Black
Yellow (Black)

To instrument Panel Cluster (IPC)

CUT

Green   Blue   Yellow

ALL WIRES ARE 20 AWG

BULLDOG MODEL 721

WIRING DIAGRAM

PURPLE (-) Output to Bulb Check Relay #85

WHITE (-) Negative Input

ORANGE Starter Input

YELLOW Module Side

GREEN Key Side

BLUE Resistance Output

RED (+) Constant Power Input

BULLDOG MODEL 721
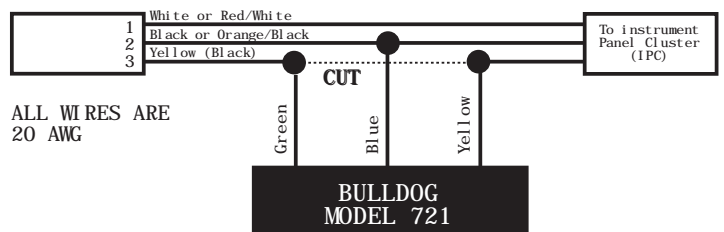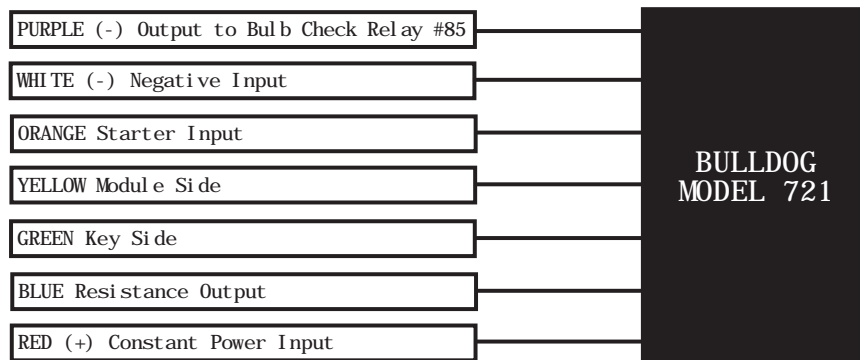
WIRE CONNECTION GUIDE FOR PASSKEY

RED (+) • Constant Power Input: Connect to a fused source of constant 12V.
WHITE (-) • Negative Input: Connect to a wire from the remote start system which provides (-) ground during ignition. (**WHITE** wire 16 awg on relay harness)
BLUE • Resister Relay Output #87: This wire will apply the selected resistor value to the Passkey system. Connect this wire to (small **WHITE** or **PURPLE** 20 awg) wire in the vehicle.
GREEN • Resister Relay, normally closed #87a: Connect to the ignition switch side of the (small **WHITE** or **PURPLE** 20 awg) wire in the vehicle.
YELLOW • Resistor Relay, common #30: Connect to the small (**WHITE** or **PURPLE** 20 awg) wire facing away from the ignition switch in the vehicle. The **ORANGE** and **PURPLE** wires are not used.

WIRE CONNECTION GUIDE FOR PASSLOCK I
RED (+) • Constant Power Input: Connect to a fused source of constant 12V.
ORANGE (-) Connect to a wire on your remote start system that supplies a (-) ground only when cranking (Bulldog 16 awg **YELLOW WITH BLACK STRIPE** wire on relay harness) wire from the remote start system which provides (-) ground only while the vehicle is cranking.
PURPLE (-) • Output to Bulb Check Wire: Connect to the 20 ga. **BLACK** "bulb check" wire in the ignition switch power harness. This wire will test (-) ground when the ignition switch is turned to the "start" position.

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WHITE (-) • Negative Input: Connect to a wire from the remote start system which provides (-) ground before and after the vehicle starts, but not during cranking. (**WHITE WITH BLACK STRIPE** 16 awg wire on a relay harness)

BLUE • Resistor Relay Output #87: This wire will apply the selected resistor value to the Passlock system. Connect this wire to the small **BLACK** wire in the 3 wire ribbon cable in the vehicle.

GREEN • Resistor Relay, normally closed #87a: Connect to the ignition switch side of the **YELLOW** or **BLACK** wire in the 3 wire ribbon cable in the vehicle.

YELLOW • Resistor Relay, common #30: Connect to the side of the **YELLOW** or **BLACK** wire facing away from the ignition switch. This wire is located in the vehicle's 3 wire ribbon cable.

WIRE CONNECTION GUIDE FOR PASSLOCK II

RED (+) • Constant Power Input: Connect to a fused source of constant 12V.

BLUE • Resistor Relay Output #87: This wire will apply the selected resistor value to the Passlock system. Connect this wire to the   (small **BLACK** or **BLACK WITH ORANGE STRIPE**) wire in the vehicle.

GREEN • Resistor Relay, normally closed #87a Connect to the ignition switch side of the **YELLOW** or **BLACK** wire in the vehicle.

YELLOW • Resistor Relay, common #30 Connect to the **YELLOW** or **BLACK** wire facing away from the ignition switch in the vehicle.

WHITE (-) • Negative Output: Connect to a wire from the remote start system which provides (-) ground during ignition (**WHITE** wire 16 awg on relay harness) The **ORANGE** and **PURPLE** wires are not used.

SETTING DIP SWITCHES

NOTE: Switches must be set before installation;
CAUTION: Never set switches 1-10 all to (0) "down" when installed.

Switches 1-10 control the resistor value as shown in the chart. A "1" in the chart indicates the switch is in the "up" position. Switches 11 and 12 control the timing of the "bulb check". The "bulb check" is necessary for the car's computer start sequence. The setting of switch 11 or 12 depends on the wiring of the start wire and is described below.

The model has 10 dip switches that are used to select the proper resistor value. Find the desired resistance value on chart from dip switch settings 9 and 10. Read across the row to determine the settings for switches 1-8. Setting for switches 9 and 10 are shown at the top of the column with the desired resistance. Although the highest quality resistors have been used, some variance is possible. If the selected resistor value does not work in the vehicle, try the next higher or lower setting. If that still does not work, re-measure the resistor value. **NOTE: The system may lock up if the wrong resistor value is used. In that case, the vehicle will not start, even if the key is used. See Troubleshooting for details.**

TROUBLESHOOTING

If the vehicle starts and then stalls out immediately:
1. Turn the key to the "run" position.
2. Is the "Theft System" light flashing or on solid?
   • If on solid, go to step 3
   • If flashing, go to step 4
3. Make sure the engine will start using the key. If it does, check:
   A. Make sure that the purple wire is properly connected to the "bulb check" wire.
   B. Make sure that the orange wire is properly connected to the yellow/black on the relay pack.
   C. make sure that the second ignition is powered.
   D. Make sure that the green and the yellow wires are not reversed.
   E. The "Theft System" light stops flashing and comes on solid (about 10 minutes).
   F. One or more of the ribbon cable wires are not disconnected.
4. Turn the key to the "run" position until the "Theft System" light stops flashing and comes on solid (about 10 minutes). Re-test the R-Code to make sure you have properly measured it. Double check the resistor setting you are using. It must be within 10% of the measured value. Correct if necessary.
5. Try to start the motor using the remote start.

DIP SWITCH SETTINGS

1	2	3	4	5	6	7	8	9=0, 10=0	9=1, 10=0	9=0, 10=1	9=1, 10=1
0	0	0	0	0	0	0	0	0	6650	13300	19950
1	0	0	0	0	0	0	0	26	6676	13326	19976
0	1	0	0	0	0	0	0	51	6701	13351	20001
1	1	0	0	0	0	0	0	77	6727	13377	20027
0	0	1	0	0	0	0	0	102	6752	13402	20052
1	0	1	0	0	0	0	0	128	6778	13428	20078
0	1	1	0	0	0	0	0	153	6803	13453	20103
1	1	1	0	0	0	0	0	179	6829	13479	20129
0	0	0	1	0	0	0	0	205	6855	13505	20155
1	0	0	1	0	0	0	0	231	6881	13531	20181
0	1	0	1	0	0	0	0	256	6906	13556	20206
1	1	0	1	0	0	0	0	282	6932	13582	20232
0	0	1	1	0	0	0	0	307	6957	13607	20257
1	0	1	1	0	0	0	0	333	6983	13633	20283
0	1	1	1	0	0	0	0	358	7008	13658	20308
1	1	1	1	0	0	0	0	384	7034	13684	20334
0	0	0	0	1	0	0	0	412	7062	13712	20362
1	0	0	0	1	0	0	0	438	7088	13738	20388
0	1	0	0	1	0	0	0	463	7113	13763	20413
1	1	0	0	1	0	0	0	489	7139	13789	20439
0	0	1	0	1	0	0	0	514	7164	13814	20464
1	0	1	0	1	0	0	0	540	7190	13840	20490
0	1	1	0	1	0	0	0	565	7215	13865	20515
1	1	1	0	1	0	0	0	591	7241	13891	20541
0	0	0	1	1	0	0	0	617	7267	13917	20567
1	0	0	1	1	0	0	0	643	7293	13943	20593
0	1	0	1	1	0	0	0	668	7318	13968	20618
1	1	0	1	1	0	0	0	694	7344	13994	20644
0	0	1	1	1	0	0	0	716	7369	14019	20669
1	0	1	1	1	0	0	0	745	7395	14045	20695
0	1	1	1	1	0	0	0	770	7420	14070	20720
1	1	1	1	1	0	0	0	796	7446	14096	20746
0	0	0	0	0	1	0	0	825	7475	14125	20775
1	0	0	0	0	1	0	0	851	7501	14151	20801
0	1	0	0	0	1	0	0	876	7526	14176	20826
1	1	0	0	0	1	0	0	902	7552	14202	20852
0	0	1	0	0	1	0	0	927	7577	14227	20877
1	0	1	0	0	1	0	0	953	7603	14253	20903
0	1	1	0	0	1	0	0	978	7628	14278	20928
1	1	1	0	0	1	0	0	1004	7654	14304	20954
0	0	0	1	0	1	0	0	1030	7680	14330	20980
1	0	0	1	0	1	0	0	1056	7706	14356	21006
0	1	0	1	0	1	0	0	1081	7731	14381	21031
1	1	0	1	0	1	0	0	1107	7757	14407	21057
0	0	1	1	0	1	0	0	1132	7782	14432	21082
1	0	1	1	0	1	0	0	1158	7808	14458	21108
0	1	1	1	0	1	0	0	1183	7833	14483	21133
1	1	1	1	0	1	0	0	1209	7859	14509	21159

1	2	3	4	5	6	7	8	9=0, 10=0	9=1, 10=0	9=0, 10=1	9=1, 10=1
0	0	0	0	1	1	0	0	1237	7887	14537	21187
1	0	0	0	1	1	0	0	1263	7913	14563	21213
0	1	0	0	1	1	0	0	1288	7938	14588	21238
1	1	0	0	1	1	0	0	1314	7964	14614	21264
0	0	1	0	1	1	0	0	1339	7989	14639	21289
1	0	1	0	1	1	0	0	1365	8015	14665	21315
0	1	1	0	1	1	0	0	1390	8040	14690	21340
1	1	1	0	1	1	0	0	1416	8066	14716	21366
0	0	0	1	1	1	0	0	1442	8092	14742	21392
1	0	0	1	1	1	0	0	1468	8118	14768	21418
0	1	0	1	1	1	0	0	1493	8143	14793	21443
1	1	0	1	1	1	0	0	1519	8169	14819	21469
0	0	1	1	1	1	0	0	1544	8194	14844	21494
1	0	1	1	1	1	0	0	1570	8220	14870	21520
0	1	1	1	1	1	0	0	1595	8245	14895	21545
1	1	1	1	1	1	0	0	1621	8271	14921	21571
0	0	0	0	0	0	1	0	1650	8300	14950	21600
1	0	0	0	0	0	1	0	1676	8326	14976	21626
0	1	0	0	0	0	1	0	1701	8351	15001	21651
1	1	0	0	0	0	1	0	1727	8377	15027	21677
0	0	1	0	0	0	1	0	1752	8402	15052	21702
1	0	1	0	0	0	1	0	1778	8428	15078	21728
0	1	1	0	0	0	1	0	1803	8453	15103	21753
1	1	1	0	0	0	1	0	1829	8479	15129	21779
0	0	0	1	0	0	1	0	1855	8505	15155	21805
1	0	0	1	0	0	1	0	1881	8531	15181	21831
0	1	0	1	0	0	1	0	1906	8556	15206	21856
1	1	0	1	0	0	1	0	1932	8582	15232	21882
0	0	1	1	0	0	1	0	1857	8607	15257	21907
1	0	1	1	0	0	1	0	1983	8633	15283	21933
0	1	1	1	0	0	1	0	2008	8658	15308	21958
1	1	1	1	0	0	1	0	2034	8684	15334	21984
0	0	0	0	1	0	1	0	2062	8712	15362	22012
1	0	0	0	1	0	1	0	2088	8738	15388	22038
0	1	0	0	1	0	1	0	2113	8763	15413	22063
1	1	0	0	1	0	1	0	2139	8789	15439	22089
0	0	1	0	1	0	1	0	2164	8814	15464	22114
1	0	1	0	1	0	1	0	2190	8840	15490	22140
0	1	1	0	1	0	1	0	2215	8865	15515	22165
1	1	1	0	1	0	1	0	2241	8891	15541	22191
0	0	0	1	1	0	1	0	2267	8917	15567	22217
1	0	0	1	1	0	1	0	2293	8943	15593	22243
0	1	0	1	1	0	1	0	2318	8968	15618	22268
1	1	0	1	1	0	1	0	2344	8994	15644	22294
0	0	1	1	1	0	1	0	2369	9019	15669	22319
1	0	1	1	1	0	1	0	2395	9045	15695	22345
0	1	1	1	1	0	1	0	2420	9070	15720	22370
1	1	1	1	1	0	1	0	2446	9096	15746	23396

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0	0	0	0	0	1	1	0	2475	9125	15775	22425
1	0	0	0	0	1	1	0	2501	9151	15801	22451
0	1	0	0	0	1	1	0	2526	9176	15826	22476
1	1	0	0	0	1	1	0	2552	9202	15852	22502
0	0	1	0	0	1	1	0	2577	9227	15877	22527
1	0	1	0	0	1	1	0	2603	9253	15903	22553
0	1	1	0	0	1	1	0	2628	9278	15928	22578
1	1	1	0	0	1	1	0	2654	9304	15954	22604
0	0	0	1	0	1	1	0	2680	9330	15980	22630
1	0	0	1	0	1	1	0	2706	9356	16006	22656
0	1	0	1	0	1	1	0	2731	9381	16031	22681
1	1	0	1	0	1	1	0	2757	9407	16057	22707
0	0	1	1	0	1	1	0	2782	9432	16082	22732
1	0	1	1	0	1	1	0	2808	9458	16108	22758
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0	0	0	0	1	1	1	0	2887	9537	16187	22837
1	0	0	0	1	1	1	0	2913	9563	16213	22863
0	1	0	0	1	1	1	0	2938	9588	16238	22888
1	1	0	0	1	1	1	0	2964	9614	16264	22914
0	0	1	0	1	1	1	0	2989	9639	16289	22939
1	0	1	0	1	1	1	0	3015	9665	16315	22965
0	1	1	0	1	1	1	0	3040	9690	16340	22990
1	1	1	0	1	1	1	0	3066	9716	16366	23016
0	0	0	1	1	1	1	0	3092	9742	16392	23042
1	0	0	1	1	1	1	0	3118	9768	16418	23068
0	1	0	1	1	1	1	0	3143	9793	16443	23093
1	1	0	1	1	1	1	0	3169	9819	16469	23119
0	0	1	1	1	1	1	0	3194	9844	16494	23144
1	0	1	1	1	1	1	0	3220	9870	16520	23170
0	1	1	1	1	1	1	0	3245	9895	16545	23195
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