

#926 "FIRE BALL"

INSTALLATION AND GENERAL GAME OPERATION INSTRUCTIONS

INSTALLATION

On all games there are certain items that should be checked after shipment. These are visual inspections which may avoid time consuming service work later. Minor troubles caused by abusive handling in shipment are unavoidable. Cable plugs and sockets may be loosened, switches (especially tilt switches) may go out of adjustment. Plumb bob tilt switch should always be adjusted after game is set on location and leg levelers are adjusted.

Visual inspections before plugging in line cord: -

1. Check that all cable plugs are firmly seated in proper sockets.
2. Check that cables are clear of all moving parts and relays.
3. Check for any wires that may have become disconnected.
4. Check switches for loose solder or other foreign material that may have come loose in shipment and could cause shorting of contacts.
5. Check wires on relay coils for proper soldering, especially the bare (common) wire connecting a row of relay coils. Cold solder connections may not show up in factory inspection, but vibration in shipment may break contact.
6. Check that fuses are firmly seated and making good contact.
7. Check (manually) the stepping and resetting of all step-up units. The wiper action should not be sluggish.
8. Check transformer for any foreign material shorting across wiring lugs.
9. Check wiring of transformer to correspond to location voltage. (Transformer wiring card in front cabinet.)

Before the line cord is plugged in: -

Check all plugs and sockets and cable dressing:

- (A) Plugs in correct sockets.
- (B) Plugs securely seated in sockets.
- (C) Dress cables away from relays, step ups and any mechanically acting units.

Check adjustment of the three (normally open) tilt switches:

- (A) Panel tilt on bottom of playfield panel.
- (B) Plumb-bob tilt on left side of cabinet near front door.
- (C) Ball tilt above plumb-bob tilt.
Insert one of the four balls into ball tilt assembly and adjust bracket so ball will roll over switch blade if front of cabinet is raised.

Adjustment of Kick-off and Anti-Slam Switches:

Check adjustment of the (normally closed) kick-off switch at rear of cabinet mounting board, near cable plugs. Check adjustment of the (normally closed) anti-slam switch, on front door.

GENERAL GAME OPERATION

Place 3 balls on playfield by the out hole.

Plug in the Line Cord:

Starting Game: Insert correct coin, if coin should be rejected, move on-off master switch at bottom right front corner of cabinet to "on" position. Then insert coin again. The coin lock-out device rejects all coins when power (master switch) is off.

- 1A. If a coin is inserted in 1st (nickel) coin chute and game is set for 1 play-5¢, it will energize the "coin relay". If game is set for 1 play-10¢, the first coin inserted will advance the "2-coin unit", then second coin inserted will energize the "coin relay" thru 2-coin unit switch. (See 1st coin chute adjustment plug positions on game adjustments sheet).
- 1B. If a coin is inserted in 2nd (dime) coin chute and game is set for 1 play-10¢, it will energize the "coin relay". If game is set for 2 plays-10¢, it will energize the "2nd coin chute relay" and the 2nd coin chute relay will advance "credit unit" (2 steps) thru coin credit circuit. (See 2nd coin chute adjustment plug positions on game adjustments sheet).
- 1C. If a coin is inserted in 3rd (quarter) coin chute and game is set for 2-3-4-5-or 6 plays-25¢, it will energize the "3rd coin chute relay" and 3rd coin chute relay will advance "credit unit" (2-3-4-5-6 steps) thru coin credit circuit. (See 3rd coin chute adjustment plug positions on game adjustments sheet).
- 1D. When "credit unit" has been advanced from 2nd or 3rd coin chute, (as described in section 1B and 1C) the front door "credit button" switch will energize the "credit relay" and then the credit relay will energize the "coin relay".

- 2A. The coin relay, when energized by any of the ways described, (in sections 1A thru 1D) will stay energized thru its own hold-in switch and (normally closed) #8 score motor switch.
- 2B. The coin relay will energize the "lock relay" which stays energized thru its own hold-in switch and cabinet kick-off switch.
- 2C. The coin relay will energize the "reset relay" thru a game over relay switch and energize the "score motor", then thru (normally open) #2 and #11 score motor switches, pulse the "#1 and #2 score reset relays", and thru (normally open) #4 score motor switch will latch the game over relay. The reset relay when energized will continue to operate the score motor. The reset relay will stay energized thru (normally closed) #8 score motor switch, and/or until all "score counter units" are reset to "zero position".
- 2D. The coin relay, thru (normally open) #3 score motor switch will advance the "total play meter", and thru reset relay will reset the "coin unit", "ball count unit" and "player up unit". The coin relay will also reset the "credit unit" (1 step) when energized by credit button.
- 3A. A ball on the out hole switch will energize the "out hole relay", thru (normally closed) #1 score motor switch and it will stay energized thru its own hold-in switch and (normally closed) #10 score motor switch.
- 3B. The out hole relay will operate the "score motor" and then energize the "out hole kicker" solenoid thru (normally open) #4 score motor switch. All three balls will be kicked into the ball trough, one at a time. When all three balls have been kicked into the ball trough, one ball will be released to shooter alley and game is ready for 1st player to begin play.
- 3C. To condition game for "2nd player", inserting coin (s) or use of credit button now (before 1st ball is played) will energize the "coin relay" again. This time, coin relay will not energize the "reset relay". It will operate the "score motor", advance "total play meter", subtract a credit from "credit unit", (if credit button was used) and advance the "coin unit" thru (normally open) #3 score motor switch. Game is now set for "2 players". Repeating this sequence will condition game for "3rd player" and "4th player".

REGULAR BALL TO BALL SEQUENCE OF OPERATION:

- 1A. When the "1st ball" is played, the "ball index relay" will be energized by the "10 point", "100 point" or "1000 point" score relay and it stays energized thru its own hold in switch, (normally closed) "player reset relay" switch and (normally closed) "player up unit" end of stroke switch.
- 1B. If the ball in play goes into the "Wotan hole" or the "Odin hole", another ball is released to shooter alley and the "same player" continues playing. (Note: Balls in both Wotan and Odin holes will release a 3rd ball to shooter alley). If the ball in play goes into the outhole, it will energize the "outhole relay" thru (Normally closed) #1 score motor switch, and it stays energized thru its own hold-in switch and (normally closed) #10 score motor switch.
- 1C. The outhole relay operates the score motor and thru (normally open) #4 score motor switch will energize the "outhole kicker solenoid", and it will kick the ball from outhole into ball trough.
- 1D. When more than one ball is active on playfield, the last ball in motion becomes the "ball in play". If it goes into the "Wotan hole" or "Odin hole", another ball is released to shooter alley and "same player" continues playing. If it goes into the outhole, the outhole relay is energized, which in series with "ball trough switches" and/or "Wotan hole relay switches" and/or "Odin hole relay switches", will energize the "3rd ball relay" and it stays energized thru its own hold-in switch and (normally closed) #6 score motor switch. When the outhole relay is de-energized, the "ball release relay" will be energized thru the same series of ball trough switches, the "Wotan hole" relay switches, "Odin hole" relay switches that energized the 3rd ball relay, and it stays energized thru its own hold-in switch and (normally closed) #6 score motor switch. In normal ball to ball play (depending on "single or "multiple" players) the combination of 3rd ball relay and ball release relay switches will either advance the "ball count unit" and reset the "player up unit" or advance the "player up unit", thru (normally open) #3 and/or #4 score motor switches and "player reset relay".
- 1E. When the last eligible player's final ball returns to the outhole, the final advance of the ball count unit will in turn energize the "game over interlock relay trip coil" and the game is completed.

Note: Normal ball to ball sequence of operation is interrupted when a "tilt" occurs. A "tilt relay switch" will bypass the 3rd ball relay and ball index relay switches to advance the ball count unit and reset the player up unit or advance the player up unit. When a tilt occurs, any captive ball in "Wotan hole" or "Odin hole" remains captive.

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FEATURE OPERATION AND SCORING

Top Ramp Skill Shot Feature:

This feature provides premium scoring for a "ball shooter skill shot". For maximum scoring, the ball should be shot hard enough so ball will roll back over the three top roll-overs to score 3000. If shot too hard, the ball will go over the ramp with no skill shot scoring; if shot too easy, the ball will either go over the single roll-over to score 100 or may roll out at bottom of ramp with no skill shot scoring. When the ball goes over the three roll-overs, the first roll-over will lite the two top thumper-bumpers to score 100 instead of 10 when hit. The thumper-bumpers remain lit until ball goes into the outhole.

Wotan Hole (Captive Ball) Feature:

When a ball goes into Wotan hole, another ball is released from ball trough to shooter alley and the same player continues to play. The ball in Wotan hole remains captive until the Wotan mushroom-bumper is hit, or until target in left lane is hit by permanent captive ball. When ball is released from Wotan hole, the ball will score 100 or 1000 for each roll-over and if gate at bottom of alley is open the ball is returned to the shooter alley the gate closes and the same player continues playing. If the gate is closed the ball is returned to playing area of playfield.

Odin Hole (Captive Ball) Feature:

When a ball goes into the Odin hole, another ball is released to the shooter alley and the same player continues to play. The ball in the Odin hole remains captive until the Odin mushroom bumper is hit, or until target in left lane is hit by permanent captive ball. The ball in the Odin hole will operate the flashing lites motor unit which flashes the Odin hole score lites. When the captive ball is released, the flashing lites motor unit will stop and the game will score the lighted score.

Left Lane (Permanent Captive Ball) Feature:

The ball in the left lane is activated when hit by another ball. The lower roll-over scores 100 and the upper roll-over scores 1000. The target at top releases both captive balls in Wotan and/or Odin holes and opens gate at bottom of right alley. The gate remains open until ball goes thru the gate or in the outhole.

Flipper-Zipper Feature:

The flippers close when the close flipper mushroom-bumper is hit. The flippers open when the Wotan or Odin mushroom-bumper is hit, or at the start of a game, when game is tilted and at the end of the ball in play. When flippers are closed, they obstruct the ball or balls from going out-of-play into the outhole.

On Kicker Feature:

The "On Kicker" is located at the left out roll-over alley, and operates when "On Kicker" lite is lit and the ball actuates the left out roll-over, the ball is kicked back into play area of the play field instead of going into the outhole.

"On Kicker" feature is activated by "On Kicker Roll-Over Button" (top button above spinning rubber disc, and de-activated by "Off kicker roll-over buttons (2). Lower left and right of spinning disc.

Right Alley Feature:

Right alley three 1000 lites are lit by Wotan, Odin and close flippers mushroom bumper. When lit, the right alley roll-overs score 1000 instead of 100.

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GAME ADJUSTMENTSPLAYFIELD PANEL POST ADJUSTMENTS:

Posts that control left and right outlane opening on panel (see panel sketch FO-320) can be moved to make access to outlanes easier or harder for ball to enter.

Easier entry will "decrease" playing time and scoring.

Harder entry will "increase" playing time and scoring.

BELL ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides positions to ring bell for "100" point scores, "1000" point scores, or both "100 & 1000" point scores.

HI-SCORE ADJUSTMENT PLUG:

Located on back box lite insert. This plug provides a wide range of coverage at which hi-score "credits" can be scored. (see "Score adjustment card" in back box for plug positions).

MATCH FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to operate game on "5th ball" or "3 ball" play.

HI-SCORE FEATURE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to turn hi-score "credit" feature "on" or "off".

1ST COIN CHUTE ADJUSTMENT PLUG

Located on the 2 coin unit, on front cabinet mounting board. This plug provides positions to give "1 play for 1 coin" or "1 play for 2 coins" thru the 1st (nickel) coin chute.

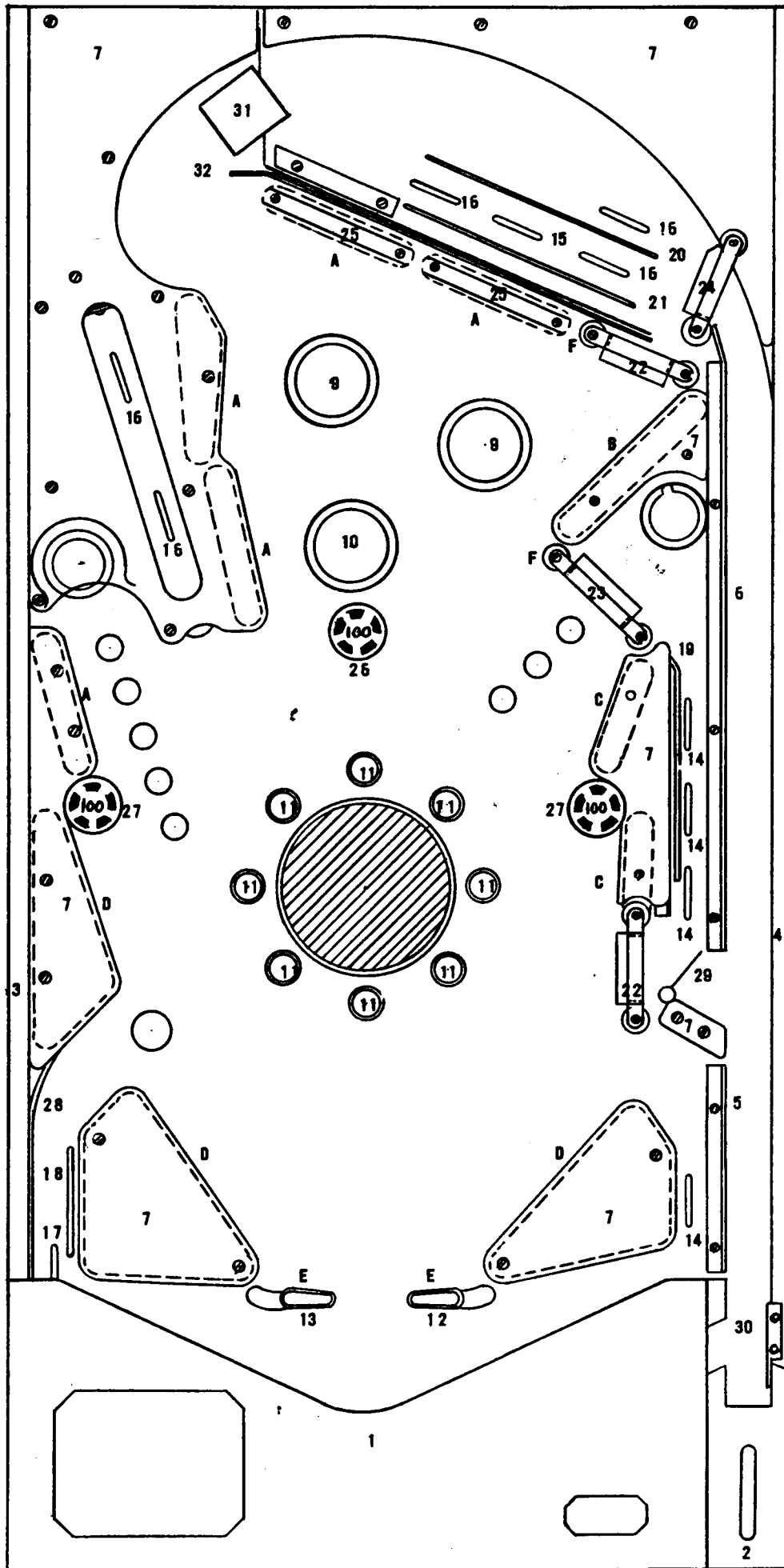
2ND COIN CHUTE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to give "1 play for 1 coin" or "2 plays for 1 coin" thru the 2nd (dime) coin chute. Note: When this plug is set for "2 plays - 1 coin", brown-white (male plug) wire on 3rd coin chute adjustment must be in "position 2".

3RD COIN CHUTE ADJUSTMENT PLUG:

Located on front cabinet mounting board. This plug provides positions to give "2 to 6 plays for 1 coin" thru the 3rd (quarter) coin chute. Use orange-white (male plug) wire.

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RUBBER PARTS

A	R-521-3	2°	(5)
B	R-521-4	2-1/2°	(1)
C	R-521-2	1-1/2°	(2)
D	R-521-5	3°	(3)
E	-R-521-1	1°	(4)
F	R-243	5/16°	(6)

PANEL TOP PARTS

1	BOTTOM ARCH	P-5831-38
2	SHOOTER GAGE	P-6359-10
3	SIDE RAIL (L)	CA-1208-16
4	SIDE RAIL (R)	CA-1208-17
5	GUIDE RAIL	P-6495-72
6	GUIDE RAIL	P-6495-71
7	LIGHT SHIELDS (SCREENED)	A-2880-81
8	LIGHT SHIELDS (CLEAR)	A-2880-82
9	BUMPER CAP (YELLOW)	C-719-17
10	BUMPER CAP (BLUE)	C-719-16
11	ROLLOVER BUTTON	C-387-5
12	FLIPPER & SHAFT (R)	AS-2214-6
13	FLIPPER & SHAFT (L)	AS-2214-7
14	ROLLOVER WIRE	M-1336-2
15	ROLLOVER WIRE	M-1336-9
16	ROLLOVER WIRE	M-1336-10
17	ROLLOVER WIRE	M-1336-13
18	BALL GUIDE WIRE	M-121-18
19	BALL GUIDE WIRE	M-121-34
20	BALL GUIDE WIRE	M-121-37
21	BALL GUIDE WIRE	M-121-38
22	BALL GATE & WIRE	AS-2250-12
23	BALL GATE & WIRE	AS-2250-24
24	BALL GATE & WIRE	AS-2250-29
25	CHROME PLATE	P-5898-7
26	MUSHROOM BUMPER	AS-2291-10
27	MUSHROOM BUMPER	AS-2291-11
28	GUIDE RAIL	P-6244-52
29	GATE WIRE	M-1335-1
30	PROTECTIVE ANGLE	P-7639
31	RAMP HOOD	P-7803
32	RAMP SUPPORT	P-7806

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MISCELLANEOUS

Transformer
 Score Motor (Domestic)
 Score Motor (Export)
 Spinning Motor
 Flash Motor
 Meter (Total Play)

PART NO.

E-122-95
 E-119-354
 E-119-411
 E-119-425
 E-119-410
 E-32-1700

ASSEMBLY COILS

Coin Lock-out
 Knocker
 Bell
 Yellow T-B (2)
 Blue T-B
 Wotan Eject
 Odin Eject
 Outhole Kicker
 Ball Release
 Open Flippers
 Close Flippers
 Kicker
 Flash Release
 Gate
 Left Sling-shot
 Right Sling-shot
 Left Flipper
 Right Flipper

PART NO.

FC-33-2600
 C-27-1000
 CB-31-2000
 A-25-1000
 A-25-1000
 A-27-1300
 A-27-1300
 A-25-950
 A-27-1300
 FC-30-1300
 E-184-239
 AK-25-1050
 F-32-2100
 AF-27-1000/32-1300
 A-26-1200
 A-26-1200
 AF-25-600/31-1000
 AF-25-600/31-1000

INTERLOCK RELAY

Game Over (Trip)
 Game Over (Latch)

G-31-1800
 G-31-1800

"G" RELAYS

Coin
 2nd Coin Chute
 3rd Coin Chute
 Credit
 Lock
 Reset
 #1 Score Reset
 #2 Score Reset
 Ball Index
 Tilt
 Ball Release
 3rd Ball
 Outhole
 Odin Eject
 Wotan Eject
 Odin Hole
 Wotan Hole
 Wotan M-B
 Close Flippers M-B
 Odin M-B
 Open Flippers
 Exit Alley
 Fire gods target
 Kicker
 Lite Yellow T-B
 Lite #1 roll-over
 Lite #2 roll-over
 Lite #3 roll-over
 1000 point
 100 point
 10 point
 Left Yellow T-B
 Right Yellow T-B
 Blue T-B

G-31-1800
 G-31-1800
 G-31-1800
 G-31-1800
 G-33-2800
 G-31-1800
 G-30-1500
 G-30-1500
 G-32-2500
 G-32-2500
 G-31-1800
 G-31-1800
 G-31-1800
 G-31-1800
 G-32-2500
 G-32-2500
 G-30-1500
 G-30-1500
 G-30-1500
 G-31-1800
 G-31-1800
 G-30-1500
 G-32-2500
 G-32-2500
 G-32-2500
 G-32-2500
 G-30-1500
 G-30-1500
 G-30-1500
 G-31-1800
 G-31-1800
 G-31-1800

UNIT COILS

2 coin (step-up)
 Credit (step-up)
 Credit (reset)
 Coin (step-up)
 Coin (reset)
 Ball Count (step up)
 Ball Count (reset)
 Player Up (step-up)
 Player Up (reset)
 00-90 (step-up)
 Score Drums (16)

CD-29-1600
 B-26-1100
 C-28-1100
 B-26-1100
 C-28-1100
 B-26-1100
 C-28-1100
 B-26-1100
 C-28-1100
 B-26-1100
 B-26-1100
 CD-29-1600

BALLY MFG. CORP.

Jan. 6, 1971

NEW COIL NUMBERS

FO-319a

OLD COIL NUMBER

NEW BALLY COIL NUMBER

CO-25A-7	A-25-1050
CO-25GG-7	B-25-925
CO-25H-7	BC-25-925
CO-26A-9	A-26-1100
CO-26GG-9	B-26-1100
CO-27R-11	C-27-1000
CO-28R-15	C-28-1100
E-184-41	BF-27-1250
E-184-46	EA-30-1150
E-184-47	EA-32-1550
E-184-55	B-29-1200
E-184-56	A-27-1100
E-184-74	CF-28-1025
E-184-75	E-32-1700
E-184-112	EA-29-950
E-184-135	BA-25-925
E-184-155	D-27-425
E-184-156	D-28-500
E-184-160	B-25-750
E-184-175	AP-27-1300
E-184-180	CE-33-4800
E-184-190	AF-25-600/31-1000
E-184-204	AF-27-1000/32-1300
E-184-205	B-27-1300
E-184-206	CD-29-1600
E-184-207	A-27-1400
E-184-213	A-27-1300
E-184-218	F-31-1500
E-184-224	F-31-2100
E-184-231	CA-29-800/31-900
E-184-235	AK-25-1050
E-184-236	J-28-1100
E-184-237	BA-26-1040
E-184-241	AF-25-600/31-1000
E-184-243	A-26-1200
E-184-248	FC-30-1300
E-184-249	BF-28-1500
E-184-250	D-30-700
E-184-252	BB-26-655/32-1245
E-184-254	FC-30-1400
E-184-257	AP-25-1050
E-184-260	B-28-1600
E-184-261	AP-31-3000
E-184-262	A-26-1200
E-184-263	AF-27-775/31-861
E-184-264	A-28-1900
E-184-265	AF-25-600/31-1000
E-184-266	D-29-675
E-184-268	AF-26-750/31-900
E-184-269	FC-33-2600
E-184-270	AB-31-3000
E-184-271	AK-24-750
E-184-272	A-25-1000
E-184-274	FC-32-2100

NOTE:

THESE COILS MAY BE ORDERED BY THE OLD COIL NUMBER OR BY THE NEW COIL NUMBER OR BY BOTH.

FC30
1300