Chapter 26

FCO Information

This chapter by Dave Bazley ...

Revision: Updated January 95 to include FCOs -> Dec 94

26.1 About this chapter

This chapter contains general information about all FCOs, plus specific information about all those published during the last six years. The life of most FCOs is one year so I have called those published during 1994 "current".

New FCOs will be publicised by factflash initially, making them more visible I hope. They will be added to the main chapter when it is updated, probably yearly.

26.2 Some terms explained

FCO - Field Change Order. A modification to an option to fix a bug or provide an enhancement. Normally performed at a customer site. All FCOs have a name, EG: LG02-F003.

ECO - Engineering Change Order. A modification to an option to fix a bug or provide an enhancement. Normally performed in the manufacturing plant or the repair centre.

REVCON - REVision CONtrol program. A system for controlling the completion of certain FCOs, basically to make sure all customers get them. This program was run by "REVCON coordinators" at Branch, UK and Area (Europe) levels. Now they're just called FCO coordinators.

EQ KIT - The kit of parts associated with the FCO. EG: EQ-01562-01.

26.3 Where to look for FCO information

All FCOs are described by an "FCO document" which can be found in the following places:

TECHNICAL INFORMATION (GREEN) FICHE - Look under option for "D-O-L" (Dec-O-Log) section. This contains a list of FCOs plus revision information. Following this is the "FCO's" section which contains the FCO documents themselves.

SPEED BULLETIN FICHE - These contain the above information for new FCOs which have not been added to the green fiche yet.

EQ KIT - Most EQ kits contain an FCO document.

TIMA - There is an FCO database on STARS.

NOTESFILE: KERNEL::UK_FCO - This notesfile contains the implementation plans for recent ('92 onwards) *UK controlled* FCOs only.

If you cannot find the information you need, talk to your local FCO Coordinator or Focus Engineer for the option involved.   Note: This chapter contains only summaries of FCOs. More information can be found in the FCO document.

26.4 Doing FCOs Right

I know this is boring so I shall say it once and once only. However... it is **important!** The way in which FCOs are installed and reported can make the difference between them being a "good idea" and a "bad idea". This is from the customer's and our point of view. Here are some reminders:

1. Tell customers FCOs are a good thing.

2. Before doing an FCO warn customers about the impact it may have. EG: It may change the system SID number or some third party kit may not work. If you do this they are more likely to agree with point 1.

3. If you check a site and find it does not need a controlled FCO tell your FCO Coordinators. Otherwise they will just think you haven't done it!

4. Report FCO activity carefully, otherwise our Service Centre will not get paid! (See below).
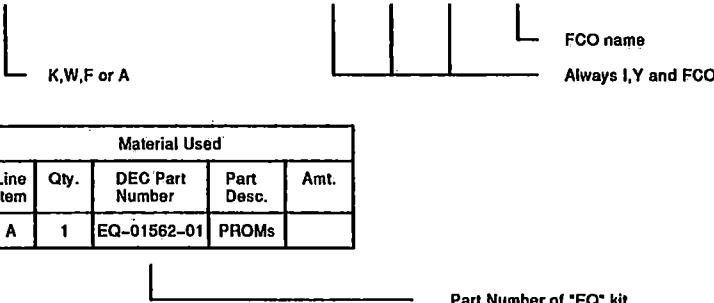
26.4.1 Reporting

The following rules apply at Welwyn and Newmarket

1. All FCO calls should be logged.

2. Written LARS are no longer required for FCOs, however use of the correct codes is still essential. (See Figure 26–1).

3. The details should be phoned in to your Resource Controller as soon as the call is complete.

4. The Fault Label (on the returned parts) must be filled in as follows. No other combination should **ever** be used.

   • Part Number = EQ-nnnnn-nn

   • Activity code = K, W, F or A. (Y is dead!)

   • Product line = 111

5. For certain options we can also report repairs as FCOs, and charge parts and labour to Product Line 111, even though an FCO does not apply. See Factflash "PL111 List - Cost Relief" for lastest details.

Figure 26-1: FCO LARS example

Act.	Repair Time	DEC Option	Serial Number	Type of Call	Action Taken	Fail Area
•	•.•	LG03	8701234	I	Y	FCO LG02–F003

K,W,F or A

FCO name

Always I,Y and FCO

Material Used			
Line Item	Qty.	DEC Part Number	Part Desc.	Amt.
A	1	EQ–01562–01	PROMs	

Part Number of "EQ" kit

NOTE: This information is included in all FCO documents.

26.4.2 Upgrades

Beware upgrades. The term "upgrade" can be used to describe almost any hardware/software change. However it is usually applied to software and ucode updates. EG: CPU patch code or ·CI ucode. These upgrades are not FCOs. Therefore they have no FCO name or EQ kit and you can't charge them to "111". But, they may be equally important! Sometimes your FCO coordinator will be aware of them. Otherwise the Focus Engineer is the best person to speak to.

26.5 FCO tables

The first table, called "Current FCOs", contains all the FCOs I heard about during the last year (1994).

The other table, called "Old FCOs", contains all FCOs published between 1989 and 1993. It also contains some FCOs published during 1988.

26.5.1 Legend

FCO No.	Number of FCO. What to look for on fiche etc.
Description	What it does
EQ Kit No.	Logistics part. What to order
Quick Check	How to check if the FCO IS NOT required
SB. No.	Speed Bulletin number
Comments	Anything I think useful!

26.5.2 Current FCOs (published in 1994)

FCO No.	Description
EQ Kit no.	Quick check
SB. No.	Comments

FCO No. / EQ Kit no. / SB. No.	Description / Quick check / Comments
7XXX-F005 EQ-01708-01 —	New CCL module fixes power up problem caused by C14 reversed See chapter 6, or FCO document "Bad batch" of these modules left Ayr between weeks 21 and 31 of 1994
821XXX-IEU2 No EQ kit —	Incorrect FW setting causes corruption on Quantum 270 Mb disk No Quick check, see FCO Document on TIMA 821XXX = CELEBRIS 466/4100 (a PC)
A2150/60-O001 EQ-01703-01 789	New I/O board fixes whole bunch of problems (see fiche) I/O board (B2110-AA) = rev J02 or higher A2150 = Digital Server 2100 model 500, A2160 = model 600
BA60-F001 EQ-01696-01 769	New airflow sensor for rackmount VAX 6000 stops A/C breaker tripping Airflow sensor P/N = 12-36060-01 Have you ever seen a rackmount VAX 6000?
DNSBX-O001 EQ-01683-01 771	New PSU prevents power loss accompanied by "loud bang and smoke" PSU (H7720-AA) = rev C01 or higher This fault is not a safety hazard
DWZZA-S001 EQ-01705-01 783	New option removes Safety hazard of power connector detaching Option = rev D01 or higher Only applies to DWZZA-AA (Table top units), with serial nos. between CX406xxxxx and CX420xxxxx
DWZZA-xA-I001/2 EQ-01705-01/02 789	New revision fixes "Bus hung" conditions in ASE/DECsafe environments DWZZA-AA = rev E01, DWZZA-VA = rev F01 DWZZA-AA-S001 now also uses EQ-Kit EQ-01705-01
FS-POL01-A0EU1 No EQ kit —	Upper POT lever arms replaced to prevent possible cracking New arms, see FCO Document on TIMA FS-POL01-AB = Polaroid Helios 810 Laser Imager
FT810-O001 EQ-01701-01 778	New FW on the I/O ATM (KD560-AA) fixes boot, diag and other bugs E150 = 23-037Z4-00, or FBF0, E151 = 23-036Z4-00, or B06A, E152, or 23-006Z4-00, or 955A 1 kit has enough parts for 2 ATM modules
FT810-O002	Same as KN430-O003, but for VAXFT Model 810 systems
KA45/47-F002 EQ-01704-01 782	New FW ROMs fix MOP, SCSI and RZ26L and RZ28 drive problems KA4x-A V1.4-38D-V4.2 displayed on screen during PUST KA45 = MVAX 3100 models 30/40. KA47 = MVAX 3100 model 80
KN16-XX-F002 EQ-01702-01/02 782	New system board for DEC3000, all 300 models, fixes random crashes System board = rev K01 Only applies to systems with Samsung Memory
KN1X-F00X (MUP) EQ-01699-01 778	Patch to FW removes risk of data corruption due to SCSI errors No quick check, apparently! Customers *should* receive patch with VMS/OSF and install it themselves

FCO No.	Description
EQ Kit no.	Quick check
SB. No.	Comments

KN430-O003	New FEU fixes "random system errors" due to high ground currents
EQ-01688-01	H7884-AA is rev D06 or higher
774	KN430 = DEC 4600. FEU = Front End Unit (H7884-AA)
KN430-O005	New I/O module for DEC 4600 fixes system crashes
EQ-01682-01	I/O module (B2101-AA) is rev H1/H2 or higher
782	See FCO Coordinator for FCO Document
KN7AA-O001	New DEC 7000/10000 CPU fixes Memory interleave restriction and Cache ECC errors
EQ-01694-01	CPU module = E2040-YA at rev E01 or higher
773	Be careful: This FCO appears on SB 776 as 7xxx-O004, which is the VAX 7000 FCO number
P4000-O001	New controller for Phillips Disk/Tape streamer WDJ fixes data corruption
EQ-01700-01	Controller, FD-W011U-01 (5122 161 00123) = rev 24 or higher
—	P4x00 and P9300 systems are affected
PB22H-O002	New EPROM for ADAPTEC SCSI controller required for OSF/1
EQ-01697-01	Use SHOW DEVICE to check ADAPTEC rev is G.2
773	DECpc 150 AXP serial nos. AY312xxxxx to AY325xxxxx affected
LN08-F003	New PostScript firmware fixes slow printing due to fragmented memory
EQ-01684-01	Postscript firmware is 47-58 or better (see powerup test page)
774	LN08 = DEClaser 3250
RZ57-F001	New EPROM fixes undetected write error
EQ-01695-01	RZ57-E is rev. D01 or higher
771	Only RZ57s on VS4000 models 60, 90 and VLC need this FCO

26.5.3 Old FCOs (published 1988 to 1993)

FCO No. EQ Kit No. SB. no.	Description Quick check Comments
11750-I009 Vaxpax 33 566	New PCS code CMT103 for V5 + fix for REMQUE problem Examine SID reg. 2nd byte = 67 HEX CMT104 (Vaxpax 36) is now required for VMS 5.2
2R-RZR6A-F001 EQ-01595-01 662	New front bezel fixes ESD problem Hinged door on front Worse in dry season (aren't we all!)
51/52/55XXX-O001 EQ-01648-01 726	New T3001-AA CIO module fixes crashes T3001 = Rev P01, E23 = 23-327E9-00 Only field spares affected
52XMX-O001 EQ-01594-01 thru 06 658	New CPU firmware, I/O modules and cables fix various problems See fiche Vaxft 3000 model 310 systems shipped before 1-Nov-90 affected
58XMX-O001 EQ-01585-01/02/03 677	T2025,T2026 and T1035 replaced to fix cache parity errors and support ULTRIX V4.0 and multi-processing T2025 has wires on E57 pins 8 and 9, T2026 rev = B1 and T1035 E76 = 23-401E5-00 -01 kit may contain wrong chip (23-535E6-00). Correct chip = 23-605E6- 00
5900-O001 EQ-01670-01 759	RZ57s can hang SCSI. Fix is to replace with RZ58s Does system have RZ57s? If so, swap 'em!
62XMX-F002 EQ-01552-01 603	Fixes console TK50 compatibility problem T1034 = Rev K3,4 or 5. (E81 = 23-358E5-00) Most 62XXs have 2 x T1034, both should be FCOed
62XMX-I003 EQ-01630-01 705	CPU module, T2011 upgraded to Rev AL when DWMVA option fitted T2011 = Rev AL and E16 = 23-303E9-00 and E8 = 23-302E9-00 DWMVA also needs VMS 5.4-3
63XMX-F003 EQ-01596-01/02/03 672	New rev T2011-YA/YC fixes cache tag parity errors and RBD failures ROM in E16 = 23-188E9-00 for -YA, and 23-192E9-00 for -YC See Section 1.10
63XMX-I004 EQ-01630-02 705	CPU module, T2011-YA upgraded to Rev AF when DWMVA option fitted T2011-YA = Rev Af and E16 = 23-305E9-00 and E8 = 23-304E9-00 DWMVA is XMI to VME bus adapter
64XMX-O002 EQ-01591-01/02/05 668	New T2015,T2015-YA and T2017 fix various problems T2015 = rev L, T2015-YA = rev D and T2017 = rev J Kit -01 = T2015, kit -02 = T2017 and kit -05 = T2015-YA
64XMX-I003 EQ-01630-03 705	CPU module, T2015 upgraded to Rev AM when DWMVA option fitted T2015 = Rev AM and E97 = 23-308E9-00 and E77 = 23-307E9-00 DWMVA also needs VMS 5.4-3

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FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments
65XMX-I001	CPU module, T2052 upgraded to Rev K when DWMVA option fitted
EQ-01630-04	T2052 = Rev K, E10 = 23-312E9-00, E8 = 23-311E9-00 and E4 = 23-310E9-00
705	DWMVA is XMI to VME bus adapter
7XXX-F001	Removing C49 from blower servo stops it self destructing
EQ-01656-01	Blower serial no. above 675 or marked with "Green dots"
747	Recommended to do 7XXX-F002 at same time
7XXX-F002	New Door catches + Air pressure switch on CCL bypassed
EQ-01666-01	Door catches = rev D01. CCL greater than rev J03
751	Do at same time as 7XXX-F001
7XXX-F003	New cables and power components are now FCC compliant
EQ-01675-01 thru 06	See fiche
758	FCO only applies to spares
7XXX-O004	New VAX 76xx CPU module fixes memory interleaving and cache ECC error handling
EQ-01673-02	CPU module (E2045-AA) = rev P, Console must be V2.4 minimum
763	Re-issue of FCO on SB#758
85XBA-I008/871BA-I004/882BA-I006	MCL replaced by PMCL to improve FRU isolation with 64Meg arrays
EQ-01518-01	Memory controller = F1021
542	Only for systems with 64Meg arrays
85XBA-I009	Overvoltage fault on H7187 after short power interruption
EQ-01535-01	H7060 = Rev B6,B7 or higher
565	Uses same kit as H7232-R001
85XBA-F010/871BA-F005/882BA-F007	Upgrades Nautilus console to Rev 9.3
(See local Nautilus PFE)	Console Rev. is displayed at boot time. It will be 9.3
629	This is latest version of this FCO. 9.3 code seems harmless!
885BA-F002	Pstar memory box can fail to power up + filter cable added
EQ-01575-01	Console = rev 8.0 + cable 17-02438-01 in J29 on power controller
645/649	See your local PFE for lastest console S/W
9XXX-O002	"Bad batch" of MCUs need to be replaced
EQ-01609-xx	See list of affected MCUs in FCO DOC appendix A
674	"xx" depends on type of MCU
9XXX-O003	New P1009 VAP MCU fixes KAF and cache error problems
EQ-01610-01/02	P1009 is at rev. L02
680	Re-issue of FCO on SB# 677
9XXX-I004	Fits "bustle" to all VAX 9000s
EQ-01615-01 thru 04	N/A
693	Re-issue of FCO on SB# 686

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments
9XXX-O005	Replaces AMP and Woven Electronics cables on 2xx and 4xx systems
EQ-01618-01/02/03	See fiche
686	Later Woven cables are ok
9XXX-S006	Stabiliser bar to be fitted when cabinets are moved
EQ-01622-01	Did you trip over it?
694	Bar stays on site after move
9XXX-O007	XJA module replaced to fix KAF and hang problems
EQ-01624-01	T1061 module is Rev E4, E5, E6 or E7
696	
9XXX-O008	MCUs replaced to fix data corruption due to ALPHA particle effects (!)
EQ-01623-01/02	P1003-AA (MUL) and P1004-AA (FAD) = Rev H02
696	
9xxx-O009	Replaces air flow sensors in -2xx and -4xx systems to fix false tripping
EQ-01635-01/02	12-28780-06 in -2xx and 12-28780-11 in -4xx systems
709	-01 kit for -2xx and includes new motor speed sensor
9XXX-O010	New cables allow 2nd CPU cab to power up when 1st UPC is off
EQ-1629-01	17-03137-01 on upper backplane J8
709	Need V14.2 console S/W too. Re-issue of FCO on SB# 701
9XXX-O011	Another MCU replaced to fix more ALPHA particle damage
EQ-01623-03	P1018-AA (VML) = Rev H02
696	Only 9000s with Vector Accelerators affected
9xxx-O012	New PCB replaces failing heat damaged capacitors
EQ-01631-01/02/03	Look for PCB (54-21037-01) containing capacitors
705	-01 kit is for 210s, -02 for 410/420s and -03 for 430/440s
9XXX-O013	New D-CARD for MPS backplanes in BI-Expander cabs fixes false error reporting due to noise
EQ-01632-01	D-CARD (54-17961-01) = Rev B01
701	
9xxx-S014	New decal corrects **potentially dangerous** silkscreen information on PIP cover
EQ-01640-01/02/03	Presence of decal
713	EQ kit depends on variant, see SB. All 9000s need this FCO
9xxx-O015	A whole bunch of MCUs in spares kit only to be replaced
EQ-01641-0x	N/A
718	New ones more reliable
9xxx-O016	New DBX MCU fixes Clock control and Memory error reporting
EQ-01644-01	P1020 DBX MCU = rev F02
718	
10XXX-O001	Same as 7XXX-O004, but for VAX 10600s
EQ-01673-02	CPU module (E2045-AA) = rev P
763	FCO Doc says spares, not sure about systems in the field

Digital Internal Use Only

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments

CI750-I005/CI780-I006/CIBCI-I002/HSC50-I009/HSC70-I001	Fixes CI path problems in clusters of more than 6 CI/HSC nodes by replacing LO100 link module
EQ-01454-05	Link module is LO118 rev B
540	Any nodes with CIBCAs will also need adjusting
CI750-I007, CI780-I007, CIBCI-I003, HSC50-I011, HSC70-I003	All L0100s at rev. D in a cluster need to be replaced if a CIXCD is installed
EQ-01616-01/02	Link module is L0100 rev. E or L0118
683	Must be L0118 if have more than 16 nodes or HSC60/90 in cluster
CI750-I006	CI750 sends dodgy data-packet if it gets Main memory error
EQ-01497-01/02	LO009 module rev C3 or higher
540	This problem could cause "undetectable data-corruption"
CXA16-F001	False logins/locked ports/framing errors etc.
EQ-01545-01	M3118-YA = Rev E2 of higher
585	CXA16s also used in DECSERVER 500/550
DEBAM-F001	V2.5 firmware fixes upline dump and numerous other problems
EQ-01647-01	DEBAM unit rev = J01
736	Aka. Ethernet Bridge 200
DEBET-F003	New firmware fixes problems with "HELLO" message
EQ-01646-01	Software version = V1.4 or higher
729	aka. LAN BRIDGE 150
DEBNI-O001	Using DEBNI console may cause MCK and other problems
EQ-01582-01	T1034-YA = Rev C5,6 or 7. E13 = 23-562E6-00
632	Do Not install on T1034-00 modules
DEFEB-F001	Fan sensing circuitry can't tell if they're working or not
EQ-01621-01	AP module, 54-19375-01 = rev B1
709	aka. DECbridge 500
DEQNA-O002	Fixes undetected data corruption
EQ-01551-01/02	M7504-00 = Rev K3, M7504-PA = Rev D1
610	Note:There is also an upgrade program to a DELQA
DEREP-I001	Fixes reset/power fail problem
EQ-01521-01	E127 = 19-24835-01
568	2 x EQ kits needed for DEREP-RA/RB (both ends)
DFMZA-I001	Error recovery/hanging problem
EQ-01524-01	DFMZA-BA/BB = Rev C01, Firmware = Rev X1.4-16
547	See also DSRZA-I001. Do this at same time
DFMZA-F002	Composite link hanging + reboot and shorting problems
EQ-01578-01	Firmware = Rev V1.5-07, Unit = Rev D1, E5 = 23-386E5-00
628	DSRZA-F002 must also be done

FCO No.	Description
EQ Kit No.	**Quick check**
SB. no.	**Comments**
DHW4X-F001	New logic board fixes "hangs and lockups" due to lost interrupts
EQ-01668-01	Logic board (54-20662-01) = rev C03
751	Do at same time as KA45/47-F001
DM300-F001	Composite links dropping + numerous Async port problems
EQ-01580-01	E140 = 23-236E7-00
640	DSRZC-F001 must also be done
DMB32-F001	Support for LP29 + bug fixes
EQ-01522-01	E28 = 23-369E6-00, E29 = 23-370E6-00
586	Prerequisite is DMB32 at Rev F1
DRB32-O004	DRB32-W can hang + T1023 has no word counter
EQ-01570-01/02	T1023 is -YA variant and E34 = 23-022L5-00
648	Only applies to DRB32-Ws with T1023 modules
DRB32-O005	New DRB32-W (T1023-YA) module fixes FAST DMA WRITE errors
EQ-01645-01	T1043 = rev C03. E82, E83, E84 and E85 contain 19-21330-01
728	You don't see many of these!
DRB32-E-F001	Some field spares (T1024) have bad ECO. Module is replaced
EQ-01680-01	See TD blitz dated 30-Apr-93 or SB.
759	FCO only applies to spares
DS-173Qx-F001/DS-183Qx-F001/DS-630Qx-F001/DS-650Qx-F001	BC05L cable crosstalk + M7764 and M7763 module incompatibility in MIRA systems
EQ-01568-01/02	Round cable (70-27118-03) connected to M7763 + M7763/64 = Rev E
625/626	There are 16 variants of this FCO!
DSRVB-F001	False logins/locked ports/framing errors etc.
EQ-01546-01	DSRVB-BB = Rev C4 or higher
585	Only DECSERVERS using RS423 are affected
DSRVD-O001	New firmware fixes sessions stopping and slow character echo
EQ-01642-02	23-275E7-00 in E17. Board = rev F. Server = rev B
716	DSRVD is a DECserver 90L
DSRZA-I001	Error recovery/hanging problem
EQ-01525-01	DSRZA-BA/BB = Rev C01, Firmware = Rev X1.4-16
547	See also DFMZA-I001. Do this at same time
DSRZA-F002	Fixes composite link hanging + CRC problem
EQ-01577-01	Firmware = Rev V1.4-05, Unit = Rev D1, E7 = 23-388E5-00
628	S/W must be upgraded to V2.3 + DFMZA-F002 done
DSRZC-F001	Composite links dropping + problems with data compression
EQ-01579-01	E03 = 23-237E7-00
640	DM300-F001 must also be done
DRB32-O002	Timing problem causes Data Corruption on BI
EQ-01541-01	T1023 = Rev H3
575	Only DRB32-W affected

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments

DRB32-O003	Timeout problem talking to CRAY
EQ-01542-01/02	T1026 = Rev E1
579	Only DRB32-C affected
EUR-EIA-I001	Protects various Comms. options from zapping
70-22818-0x	Presence of protection module
—	Protection module comes with spare option (see note 1)
H3100-F001	More false logins + system slowdowns
EQ-01547-01	H3100 = Rev D1 or higher, 54-14913-01 = Rev H2 or higher
585	H3100 is distribution panel used on DHQ/DHV11s
H7206-F001	H7206 causes system crashes due to incorrect size components
EQ-01639-01	Yellow dot on front of reworked H7206s
709	H7206 used on 6500. Only certain serial nos. affected, see fiche
H7214-F001	Regulator suffers intermittant shutoff due to silver migration
EQ-01601-01	Check serial no. of regulator and/or look for coating on hybrid module
665	See fiche for serial nos. affected. Reg. used in 6xxx and 9xxx cpus
H7226-S002	Option swap of CVC as internal frame can become "LIVE"
EQ-01574-01/02	See SB. for affected serial nos.
620	You shouldn't see these 'cos they are 60Hz devices
H7232-R001	Fixes overvoltage fault on 85xx with BBU
EQ-01534-01	H7060 at rev B6 or B7
561	Uses same kit as 85XBA-I009
H7250-M001	Fits Shock Hazard sticker to H7250 PSU
EQ-01515-01	Caution Seal (36-28401-01) on PSU cover
543	This PSU is used in 82/83xx systems and 85/87/88xx Expander Cabs
H7317-S001	False alarms etc. due to firmware bugs + battery fuse underated
EQ-01572-02/04	M4 U2 and U3 = V2.4, M3 U22 = V3.1 and battery fuse = 4 Amp
632	Option called PDS+. Used with Polarstar processors
H7318-S001	As H7317-S001 + transformer thermal switch problem
EQ-01573-01/03/05	As H7317-S001 + see SB for transformer check
632	Option called PCS+. Few in UK
HSC50 V390/HSC70 V390	HSC software upgrade to V394
(see Factflash 7-Jun-90)	HSC50/70> SHO SYS shows version V394
—	If you install V39A tell your coordinator!
HSC50-O010/HSC70-O002	Support for RA70 + various bug fixes
EQ-01516-01	HSC50/70> SHO REQ shows K.ci MC = 54 or higher
566	Do it with software upgrade if you can
KA410-AA-I001	MV2000s suffer garbled output on SLU ports
EQ-01556-01	CPU module = Rev F1 or higher
604	Get VMS V5 YEDRIVER first

FCO No. EQ Kit No. SB. no.	Description Quick check Comments
KA43-O001 EQ-01607-01 670	New KA43 system module fixes NS chip loading problems It's tricky - see fiche Affects VAXStation 3100 Model 76 only
KA45/47-F001 EQ-01663-01 750	New firmware fixes several bugs in MV3100 models 30, 40 and 80 >>>SHOW CONFIG gives firmware V1.2-343-V4.0 Do DHW4X-F001 at same time, if required
KA46-F001 EQ-01651-01 729	New base system ROMs fix 7 firmware bugs "SHO CONF" gives V1.2 Aka Vaxstation 4000 model 60
KA48-F001 EQ-01650-01 729	New base system ROMs fix 5 firmware bugs "SHO·CONF" gives V1.3 Aka Vaxstation 4000 model VLC
KA650-F001 EQ-01550-01/02 589	RA70 autoboot at power up + other bug fixes M7620 = Rev K2, boot banner shows KA650-A/B V5.3 V2.7 or higher Use -01 kit for multiuser (M7620-AA), -02 kit for singleuser (M7620-BA)
KA655-O001 EQ-01614-01/02 690	M7625-AA/BA logistics stock only replaced Module = Rev C1
KA660-O001 EQ-01638-01/02 709	Fixes floating point errors on Rev Ax or Bx KA660 CPU modules (M7626-AA and BA) CPU module Rev C01 or greater -01 kit for -AA (Timeshare), -02 kit for -BA (Server) module
KA670-O001 EQ-01600-01/02 686	Can't boot RAxx drives + bug in P chip ucode CPU module rev C01, E97 = 21-25087-10 -01 kit for TimeShare, -02 for Server
KDB50-R002 EQ-01507-01 552	Corrects various ucode bugs which could cause data corruption PROM at E97 on T1002 module is 23-006U2-00 T1002 needs to be rev D first
KN02-AA-O001 EQ-01589-01 647	Firmware too clever for OSI + connector problems Firmware rev = 5.3c (displayed during power up) ROM extractor 29-28497-01 needed
KN02-AA-F002 EQ-01627-01 704	Fixes problems on DECstation 5000, model 200s with 70-26722-02 system module New labels on rear chassis (see fiche) Pre-requisite FCO = KN02-AA-O001
KN02-AA-F003 EQ-01620-01 704	Fixes problems on DECstation 5000, model 200s with 70-26722-03 system module New labels on rear chassis (see fiche) Pre-requisite FCO = KN02-AA-O001

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments
KN03-GA-O001	New CPU daughter board fixes undetectable Floating Point errors
EQ-01655-01	Daughter board (54-20627-02) is rev B01, chip in centre of board is 21-35756-03
742	54- number hard to find, see FCO DOC
KN15AA-O001	New System and I/O module for DEC 3000-500 AXP seed units brings them up to revenue quality
EQ-01659-01	Depends on serial nos. See FCO Coordinator
749	Required before system is sold
KN15AA-O002	New system module fixes hangs due to TURBOchannel DMA bug
EQ-01676-01	System module (54-21149-01) is rev J05 for D etch or rev J06 for F etch
765	Re-issue of FCO on SB#759
KN15-AA-O003	New power harness removes risk of "smoke and soot"
EQ-01677-01	H7883-AA = rev J01, H7883-YA = rev C01
759	Aka. DEC 3000 model 500 (Flamingo)
KN15BA-O001	New System and I/O module for DEC 3000-400 AXP seed units brings them up to revenue quality
EQ-01660-01	Depends on serial nos. See FCO Coordinator
751	Required for system to be sold
KN15BA-O002	New system module fixes hangs due to TURBOchannel DMA bug
.EQ-01678-01	System module (54-21149-02) is rev H09 for D etch or rev H10 for F etch
766	Aka. DEC 3000 model 400 (Sandpiper)
KN220-O001	Power up self test corrupts NVRAM in DECsystem 5500s
EQ-01634-01/02	CPU module, M7637-AA is Rev F04, and E2 = 23-161E8-00
704	Rev D modules get replaced (-01 kit), Rev E get upgraded (-02 kit)
KN220-F002	New I/O module fixes system hangs due to Q-bus activity
EQ-01652-01	M7638-AA =.rev H04, E1 is 23-163E8-00, E55 is 23-074L5-00
731	Aka DECsystem 5500
KN430AA-F001	New CPU module for DEC 4000-610 AXP seed units brings them up to revenue quality
EQ-01661-01	CPU module = B2001-BA
754	Supercedes version on SB# 748. Note: IVL required
KN430-F004	New memory modules required for SMP
EQ-01681-01/02	Memory modules (B2002-CA/DA) = rev C01
765	Need to check I/O board and PSU also, before fitting 2nd CPU (see FCO document)
KN7AA-F002	New LAMB module allows byte addressing on the XMI
EQ-01686-01	LAMB module (T2028) = rev E
765	FCO only applies to spares
KU750-R002	New WCS ucode for VMS V5
EQ-01533-01	KU750 = rev 02 (see FCO Doc.)
558	Does anyone have a KU750?

FCO No.	Description
EQ Kit No.	**Quick check**
SB. no.	**Comments**
KZMSA-F001	New PAL and EPROM allow ucode to be updated on site
EQ-01674-01	KZMSA module (T2029-AB) = rev F
757	It's an XMI to SCSI adapter for DEC 76xx systems
LG01-R001/LG02-R002	Paper motion errors + printer stops with no error
EQ-01529-01	Power Amp = rev G, CPU EEPROM at 4B = 700524_111.2
555	
LG02-F003	Various "nuisance" problems + enhancements
EQ-01562-01	CPU PROM B = 700525-3
616	All LG02s with serial nos. prior to NU93259 affected
LN03X-SF/SH-F002	New ucode fixes paper jam and print problems
EQ-01569-01	Run test mode 1. Rev should be 3.0 or
664	EPROM on interface module = 890 013 030-02
LN08-O001	Filing plastic "ramp" fixes light/no printing problem
EQ-01654-01	Depends on serial nos. See Speed bulletin
749	
LN08-F002	New EPROMs fix bunch of bugs
EQ-01653-01	Depends on serial nos. See Speed bulletin
749	
LP37-S001	Cap C25 can "blow" during power up/down if fuse F2 is blown
EQ-01603-01	PSU CCA 29-28487-01 = rev B01
666	Serial nos. NUO5000 - NUO5266 affected
LPS32-F001	New firmware fixes various bugs and supports optional output trays
EQ-01662-01	LPS32 rev = B01
752	
LPS40-R001	Fixes jamming and print quality problems
EQ-01526-03	LPS40 at rev B2
551	EQ-01526-03 = EQ-01526-01 (A1->B1) + EQ-01526-02 (B1->B2)
LXYXX-S001	PSU cap. C1 is potential **FIRE HAZARD**
EQ-01588-01	1/2" diameter dot on top of C1
646	See Factflash "LXY power supply safety" at end of Chapter 23
MS630-F001	Excessive parity errors logged on MVAX IIs with 2 x MS630-CA
EQ-01549-01	MS630-CA module = Rev A2 or C1
605	
MT10A-F001	New Logic card, I/O card, PSU and keyboard make it work properly
EQ-01679-xx	54-22408-01 = rev D02, 54-22410-01 has tag "AS", H7891 = rev F01, MTXLA-AA = rev A02
761	Aka. DECPOS
PB22H-O001	New CPU board fixes crashes and/or data corruption caused by floppy
EQ-01687-01	CPU board (54-20674-01) = rev E04
765	Serial nos. between AY312xxxxx and AY325xxxxx only affected

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments
PC425I-I-EU1	New PSU cures power on/off problems due to faulty fan
Use 29-31106-01	Serial nos. OV309xxxxxx to OV321xxxxxx may need this FCO. (See FCO DOC for details)
—	Not a proper FCO, hence no EQ kit
PC4XV-F001	Decstation B/W monitor loses video
EQ-01576-01	Monitor = Rev B01
628	This FCO replaces the rev A01 monitor
PC7xx-F001	New BIOS ROM provides support for 5.25", 360KB diskettes on DECpc7xxs
EQ-01671-01	"DECpc LP version" = 1.22 (displayed during power up)
755	Actually several FCOs, xx = 36, 41, 43, 44 or 46
PMAG-DB-F001	Fixes slow running. Cancelled Sep 92
EQ-01611-01	See fiche
684	Only PMAG-DB options manufactured before June 91 affected
RA70X-I002	New ROM fixes E9 and E25 errors due to head shift
EQ-01619-02	SHOW DISK gives ucode V83 or above
702	Pre Oct 91 drives affected. Re-issue of FCO on SB# 686
RA82X-O001	Proactive replacement of RA82 HDAs -> rev E5
EQ-01592-01	See Speed Bulletin
673	Re-issue of FCO on SB# 656
RA90-O001	Took ucode to rev 8 to fix various data errors
EQ-01540-01/03	Run internal test T45. DCD = 8 (ucode rev)
574	There has since been an upgrade to rev 13 ucode
RA90X-F003	New ucode fixes drive power down/spin up problem
EQ-01593-01	Hardware rev = 25, ucode rev = v26
651	NOTE: See Richard Penn's Factflash
RA90X-I004	New PSU stops drive spinning down
EQ-01633-01	Depends on PSU serial no. See fiche
701	This FCO only affects Europe
RA9x-F005	New ucode fixes drive hangs due to invalid commands
EQ-01643-01	ucode = rev V27 or higher
721	All RA90s and RA92s affected
RA9x-O006	New PSU fixes drive powering off due to false overtemp
EQ-01633-01	Only vendor CEAG PSUs at rev N or less need replacing
731	Do RA9x-F005 at same time
RF31-O001	New firmware fixes Command timeout, ECC, BBR and "6B" servo errors
EQ-01617-01	Electronics module = Rev E01 and chip at E4 = 23-019EA-00
691	

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments
RF31T-O001/RF35-O001/RF73-O001	New firmware fixes potential data corruption
EQ-01672-01	Firmware rev = T387
760	Firmware comes as part of CSCPAT_1066 and installs under VMS
RF72-O001	New firmware fixes loads of problems. See Fiche
EQ-01617-02	Electronics module = Rev E02 and chip at E4 = 23-024EA-00
691	
RQDX3-F002	Format/Data compare errors + various command failures
EQ-01532-01	ROM 23-339E5-00 in E21 and 23-340E5 in E22 on M7546
578	RQDX3-R001 + new formatter ZRQCH0.BIC required
RV20-O001	Fixes data, controller, speed, track and PSU faults
EQ-01565-01	DSC = Rev 05, ISI = Rev 10, SDC = Rev 07 and BPT = Rev 08
610	This FCO is currently on "HOLD" (Sep 90)
RZ55-I001	Adds look-ahead caching ucode to improve performance
EQ-01581-01	RZ55-E = Rev B01, U43 = 29-28315-01
641	See SB for affected systems
TA81-F002	New firmware fixes position lost and serious exception errors
EQ-01626-01	STI interface module (29-25345) = Rev D01
712	3 EPROMS get replaced. Re-issue of FCO on SB# 701 and 703
TA90-O001	New ucode fixes intermittant EOT problem
EQ-01587-01	On STI/FIPS module E69 = 23-223E7 and E80 = 23-224E7
651	Kit includes new floppies
TA90-O002	"Get well" for TA9xs, involving grease, rods, harnesses and ucode
EQ-01637-01/02	Depends on serial no. etc. See FCO DOC
—	Ucode part no. = 22-01015-01 (not part of EQ kit)
TA/TU91-S001	"Braces" prevent hazard due to J11 on 60Hz PSU breaking
EQ-01667-01	Look for braces (see fiche)
755 & 756	50Hz drives are not affected
TC90-F001	Makes Port A useable
EQ-01571-01	Drive = Rev B04
—	
TQK70-R001	To Boot standalone backup in less than 1 hour
EQ-01528-01	EPROMs E27 = 23-410E6-00, E28 = 23-411E6-00
551	All TQK70s to be done
TSV05-I002	New QBUS controller does block mode DMA
EQ-01557-01	Controller = M7530-PA
616	FCO affects Logistics stock only
TU81E-F001	New firmware fixes position lost and serious exception errors on TU81+
EQ-01625-01	Buffer TMSCP module (29-25797) = Rev E01
699	3 EPROMs get replaced

Digital Internal Use Only

FCO No.	Description
EQ Kit No.	Quick check
SB. no.	Comments

VR290-F001	Bad EHT cable can damage components and cause focus to drift
EQ-01583-01	Green sticker by serial no. or EHT cable date code > 01/89
663	Anode discharge tool p/n: 29-24717-00 is required
VS40X-PA-F001	VR160 and VR290 with 8 plane graphics suffer video streaking
EQ-01560-01	8 plane module etch C1 = Rev B8. Etch D1 = Rev B9
617	Only VS2000 and VS3100 affected
VT320-I001	Bad character display in 132 mode fixed by new Font ROM
EQ-01531-01	In Set-Up Directory firmware = V1.2
561	Only install if customer complains
VT330-I001	New ROM cartridge fixes several firmware bugs
EQ-01513-01	In Set_Up Directory firmware = V2.1
544	
VT340-I001	Same as VT330-I001
EQ-01514-01	" " "
537	" " "
VT420-I001	Restricted fix for "VT420 smoke problem"
Kits via P1 only	See FCO document
768	A special escalation procedure must be followed
VX100-F001	Fixes VT1000 "poor performance" by firmware upgrade
EQ-01584-02	Terminal Manager Window displays V2.2
681	Re-issue of FCO on SB# 643 and 663

NOTES:

1. This FCO covers a number of options. Part Nos. as follows:

   PART No.   OPTION

   · 70-22818-01   DHQ11 (M3107)
   70-22818-01   DHV11 (M3104)
   70-22818-02   DZQ11 (M3106)
   70-22818-03   DLV11 (M8043)
   70-22818-04   DHU11 (M3105)
   70-22818-05   DMF32 (M8396)

Options Affected: Various
Submitted By: Dave Bazley
Date: 30-Mar-1995
Filing Instructions: File at end of Chapter 26, FCO and remove previous version dated 24-May-94 or 7-Nov-94. Also keep a copy with your LARS code book

PL111 list - Cost Relief

This list has been generated and agreed by TECM so that MCS can get some cost relief for product problems which really belong to Engineering.

Consumption of the following parts can be booked to Product Line 111, even though they are not part of an FCO, **provided** the corresponding failure symptoms are evident.

To do this, mark the fault label with "Consumption Reason" = ECO, and "Product Line" = 111. Book labour as "Call Type" = I and "Action Taken" = Y.

If you want more information about the problems mentioned in the following table, speak to the relevant Product Focus Engineer.

Table 1: PL111 list

Option	Part	Replacement Reason
DEC3000-500/500S AXP	54-21149-01/ 54-21147-01	Any
MV3100-30/40	54-20654-01	When upgrading to cure noise problems on TTA3 port
RF35	RF35-EA	If rev T, U or V and being upgraded to cure servo performance warning and high BBR rate
RF71	54-18316-01	If below rev 105 and being upgraded to cure intermittant VC closures
RZ24	RZ24-E/S	If rev A05 or A06 drives fail to spin up due to head/platter stiction
RZ26	RZ26-VA	If upgrading rev C02 drives to E02/F02 to cure drive availability problems on HSC, HSJ or HSZ subsystems
RZ58	RZ58-E	If problem is failure to spin up due to head/platter stiction
TZ30	TZ30-AX	If replacing due to incompatibility with VMS 5.2

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Digital Internal Use Only

Options Affected: Various
Submitted By: Dave Bazley
Date: 30-Mar-1995
Filing Instructions: File at end of Chapter 26, FCO and remove previous version dated
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Welwyn/Newmarket
Service Centre

[F] [A] [C] [T] [F] [L] [A] [S] [H]

Options Affected: Various
Submitted By: Dave Bazley
Date: 02-May-1995
Filing Instructions: File at end of Chapter 26, FCOs

New FCOs for 1995

The following information was compiled from recent Speed Bulletins (up to SB# 791) and TECM information.

Table 1:   New FCOs

FCO No. EQ Kit No. SB No.	Description Quick check Comments
FRxxxxx-O001 EQ-017**-01 789	New **Pentium** chip fixes Floating Point divide problem Look for new part number? ** = 16 thru 20 for different DECpcs. Also unusual 3 way implementation, see FCO document
KFMSB_O001 EQ-01709-01 789	New FW supports LFU, correctly reports revision and executes 2 byte write properly KFMSB-AA (T2029-AC) is rev C02 or higher KFMSB is an XMI to DSSI adapter for DEC 7000s
830xx-O001/832xx-O001/842xx-O001 EQ-01711-01 790	New main logic board fixes network and floppy failures Main Logic board (54-23544-04) is rev J01 or later Some kits had clock speed set wrong, see blitz

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